

Package ‘munsell’

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Type Package

Title Munsell colour system

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Description Functions for exploring and using the Munsell colour system

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chroma_slice	<i>Plot all colours with the same chroma...</i>
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Description

Plot all colours with the same chroma

Usage

```
chroma_slice(chroma.name, back.col="white")
```

Arguments

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

Details

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

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 *Find the complement of a munsell colour...*

Description

Find the complement of a munsell colour

Usage

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

Arguments

`col` character vector of Munsell colours
`...` passed on to `in_gamut`. Use `fix = TRUE` to fix "bad" complement

Details

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

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 *A vertical slice through the Munsell space...*

Description

A vertical slice through the Munsell space

Usage

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

Arguments

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

Details

Plot a hue and its complement at all values and chromas

Value

ggplot object

Examples

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

darker

Make a munsell colour darker...

Description

Make a munsell colour darker

Usage

```
darker(col)
```

Arguments

col character vector of Munsell colours

Details

Decreases the value of the Munsell colour by 1.

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 *Make a munsell colour less saturated...*

Description

Make a munsell colour less saturated

Usage

```
desaturate(col)
```

Arguments

col character vector of Munsell colours

Details

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

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 *Plot all colours with the same hue...*

Description

Plot all colours with the same hue

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

Details

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

Value

ggplot object

Examples

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

hvc2mns1

Converts a hue, chroma and value to a Munsell colour...

Description

Converts a hue, chroma and value to a Munsell colour

Usage

```
hvc2mns1(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_mns1 . Use <code>fix = TRUE</code> to fix "bad" colours

Details

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

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_mns1](#), [mns12hex](#)

Examples

```
hvc2mns1("5PB", 5, 10)
# All values of 5PB with chroma 10
hvc2mns1("5PB", 1:9, 10) # note some are undefined
plot_mns1(hvc2mns1("5PB", 1:9, 2))
```

*lighter**Make a munsell colour lighter...*

Description

Make a munsell colour lighter

Usage

```
lighter(col)
```

Arguments

col character vector of Munsell colours

Details

Increases the value of the Munsell colour by 1.

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)))
```

`mns12hex`*Converts a Munsell colour to hex...*

Description

Converts a Munsell colour to hex

Usage

```
mns12hex(col, ...)
```

Arguments

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

Details

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

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  
ggplot(data.frame(x = 1:10)) + geom_point(aes(x = x, y = x),  
colour = mns12hex("5PB 5/10"))
```

`mns1_hues`*Munsell hues...*

Description

Munsell hues

Details

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.map`*Provides link between Munsell colours hex and LUV*

Description

Lookup table for converting Munsell colours to hex and LUV.

Usage

```
munsell.map
```

Format

A dataframe containing columns hue, chroma, value, hex, name, L, U, V for 2740 Munsell colours. Conversion from Munsell Renotation Data is done using formulae at <http://www.bruceindbloom.com/index.html?ColorCalcHelp.html> and the function `hex` in the package `colorspace`. Code for conversion can be found in the package directory in `inst/raw/getmunsellmap.r`

Source

Munsell Renotation Data, RIT Munsell Color Science Laboratory. <http://www.cis.rit.edu/mcsl/online/munsell.php>

plot_closest *Plot closest Munsell colour to an RGB colour..*

Description

Plot closest Munsell colour to an RGB colour

Usage

```
plot_closest(R, G, B, 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

Details

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

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 *Plot hex colours...*

Description

Plot 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

Details

Quick way to look at a set of hex colours.

Value

A ggplot object

Examples

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

plot_mnsl *Plot a munsell colour..*

Description

Plot a munsell colour

Usage

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

Arguments

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

Details

Takes munsell text specifications and plots colour squares of them.

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

Converts an RGB colour to Munsell

Usage

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

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

Details

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

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

Make a munsell colour more saturated

Usage

```
saturate(col)
```

Arguments

col character vector of Munsell colours

Details

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

Value

character vector of Munsell colours

Examples

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

seq_mnsl *Generate a sequence of Munsell colours...*

Description

Generate a sequence of Munsell colours

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

Details

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.

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

Plot all colours with the same value...

Description

Plot all colours with the same value

Usage

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

Arguments

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

Details

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

Value

ggplot object

Examples

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

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