Package: noasr (via r-universe)

October 12, 2024

Title NOAS convenience functions

Version 0.0.2

Description Functions created to work well with LCBC's Nephew of All
Spreadsheet data.

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Encoding UTF-8

RoxygenNote 7.1.1

LazyData true

Depends R (>= 2.10)

Imports dplyr (>= 1.0.0), magrittr, ggplot2, png, grDevices, grid

Suggests knitr, tidyverse, vdiffr, here, usethis, testthat (>= 2.1.0),
rmarkdown, devtools, covr

VignetteBuilder knitr

URL https://github.com/LCBC-UiO/noasr

BugReports https://github.com/LCBC-UiO/noasr/issues

Repository https://lcbc-uio.r-universe.dev

RemoteUrl https://github.com/LCBC-UiO/noasr

RemoteRef HEAD

RemoteSha afe2000ff3af2b9368681c0632dda5cee65c5d22

Contents

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add_interval   *Add intervals*

Description

Since we have longitudinal data, intervals for subjects is a good way to get a better idea of the time scale of the data. These functions add extra columns to your data.

Usage

```
add_interval(data, name = interval)

add_interval_baseline(data, name = interval_baseline)
```

Arguments

data	data extracted from the NOAS
name	unquoted name to give the new column

Details

- add_interval - add interval since last visit - default col: interval

- add_interval_baaseline - add interval since first visit- default col: baseline

Value

data frame with one extra column

Examples

```
# attach built-in noas example data to test
dt <- noas_example

add_interval(dt)
add_interval_baseline(dt)

library(dplyr)
dt %>%
  add_interval() %>%
  add_interval_baseline()

# Change the default column names
dt %>%
  add_interval(name = intv) %>%
  add_interval_baseline(name = bsl_intv)
```

---

add_timepoint   *Add timepoint to data*

Description

Calculated sequential timepoint for participants along the 'visit_age' column.

Usage

```
add_timepoint(data, name = timepoint)
```

Arguments

data	data extracted from the NOAS
name	unquoted name to give the new column

Value

data frame with extra column with timepoint

Examples

```
# attach built-in noas example data to test
dt <- noas_example

add_timepoint(dt)

library(dplyr)
dt %>%
 add_timepoint()

# Change the name of the variable
```

```
dt %>%
 add_timepoint(name = tp)
```

---

as_date   *Coerce NOAS date into R date*

Description

Dates from the NOAS always come in a specific format (yyyy-mm-dd). This function is for convenience in turning NOAS dates into R-dates easily.

Usage

```
as_date(dates)
```

Arguments

dates   character of dates (yyyy-mm-dd)

Value

vector of R dates

Examples

```
dates <- c("2016-03-01", "2002-12-31")
dates <- as.Date(dates, format="%Y-%m-%d")
dates
as.numeric(dates)
```

---

filter_site   *Utility function for reducing double/triple scans to a single row*

Description

returns a MOAS data.frame with one row per participant and timepoint (i.e. removes double/triple scan entries). For analyses not intending to use the power of double/triple scans, or for data which will be widened and scanner type/site is not of interest. Only subject timepoints that have several entries (i.e. several scan sites), will be reduced. All timepoints will be retained.

Usage

```
filter_site(
  data,
  site_var = site_name,
  keep = "long",
  tie = "interval",
  site_order = c("ousPrisma", "ousSkyra", "ousAvanto"),
  verbose = TRUE
)
```

Arguments

data	data extracted from the NOAS
site_var	column name with the site information
keep	A string specifying which data from double/triple scans to keep.
tie	string indicating given a tie in the "long" keep option, what to keep.
site_order	string vector of the scanner priority given a tie between scanners
verbose	logical, TRUE sets it to verbose

Details

Available options for 'keep' are:

- "long"keep data from scanner with most data (default)
- "ousAvanto"keep 'ousAvanto'
- "ousSkyra"keep 'ousSkyra'
- "ousPrisma"'ousPrisma'

Available options for 'tie' are:

- "interval"keep data from scanner with longest data interval (default)
- "ousAvanto"keep 'ousAvanto'
- "ousSkyra"keep 'ousSkyra'
- "ousPrisma"'ousPrisma'

Value

A NOAS type file with one line per subject and timepoint.

Examples

```
# attach built-in noas example data to test
dt <- noas_example
filter_site(dt)
filter_site(dt, 'ousSkyra')
filter_site(dt, 'ousAvanto')
```

---

fs_lmm   *Create a data.frame that is ready for use in Freesufers linear mixed*
                                models

Description

`fs_lmm` Creates a data.frame of subsetted row and formatted columns ready for use in Freesurfers (6.0) linear mixed models. Design matrices are created for the grouping.var factors, and numeric variables are z-transformed.

Usage

```
fs_lmm(
  data,
  formula,
  site_var,
  folder_var,
  numeric_transform = "delete",
  ...,
  file = NULL,
  concat_list = NULL
)
```

Arguments

data	data extracted from the NOAS
formula	right-hand formula for your model. (ex. ~ visit_age * sex)
site_var	column name with the site information
folder_var	unqoted column name with folder-information of MRI data from the 'mri_info' table.
numeric_transform	
	Action to take on numeric_transform data that are numeric
...	other arguments to [utils]{model.matrix}
file	Optional string specifying file name to be saved
concat_list	character vector of fsid's that you want the data matched to. Used if the data is already concatenated and you wish to add more variables to your models.

Details

Available options for 'numeric_transform' are:

- "delete"delete observations with any numeric_transform numeric.vars
- "mean_na"replace numeric_transform with mean for that participant
- "mean_all"replace all values with the mean for that participant
- "first"replace all values with the first observation for that participant

Value

a data frame ready for Freesurfer LMM use.

Examples

```
# attach built-in noas example data to test
dt <- noas_example

fs_lmm(dt, ~ visit_age * sex * cog,
       site_var = site_name,
       folder_var = mri_info_folder
     )

 # replace NA values in numeric with
 # mean values for the participant
 fs_lmm(dt, ~ visit_age * sex * cog,
        numeric_transform = "mean_na",
        site_var = site_name,
        folder_var = mri_info_folder
      )

 # replace all numeric values with
 # mean values for the participant
 fs_lmm(dt, ~ visit_age * sex * cog,
        numeric_transform = "mean_na",
        site_var = site_name,
        folder_var = mri_info_folder
      )

 # replace all numeric values with
 # first for the participant
 fs_lmm(dt, ~ visit_age * cog,
        site_var = site_name,
        folder_var = mri_info_folder
      )

 # Provide a vector of fsid to reduce the data to
 # pre-existing concatenated imaging data.
 fs_lmm(noas_example, ~ visit_age,
        site_var = site_name,
        folder_var = mri_info_folder,
        concat_list = c("1000000_1", "1000000_3", "1000000_5")
        )
```

---

lcbc_cols   *Function to extract lcbc colors as hex codes*

Description

Function to extract lcbc colors as hex codes

Usage

```
lcbc_cols(...)
```

Arguments

...	Character names of lcbc_colors

---

lcbc_logo   *Add LCBC logo to plot*

Description

in a ggplot, adding the logo should be added early in the plot building

Usage

```
lcbc_logo(type = "main", alpha = 0.4, ...)
```

Arguments

type	type of logo to get
alpha	opacity of logo
...	arguments to [ggplot2]annotation_custom

Examples

```
library(ggplot2)
ggplot(mtcars, aes(x = wt, y = disp, colour = cyl)) +
  geom_point() +
  lcbc_logo()
```

---

lcbc_pal   *Return function to interpolate a lcbc color palette*

Description

Return function to interpolate a lcbc color palette

Usage

```
lcbc_pal(palette = "main", reverse = FALSE, ...)
```

Arguments

palette	Character name of palette in lcbc_palettes
reverse	Boolean indicating whether the palette should be reversed
...	Additional arguments to pass to colorRampPalette()

---

mean_date *Calculate the mean between two dates*

Description

Calculate the mean between two dates

Usage

```
mean_date(date1, date2)
```

Arguments

date1   first date

date2   second date

Value

mean difference between two dates

Examples

```
dates <- as.Date(c("2020-01-20", "1998-01-20"))
mean_date(dates[1], dates[2])
```

---

noas_example *Example NOAS data*

Description

A dataset containing mock data mimicking core features like the NOAS data. For testing and examples in the package.

Usage

```
noas_example
```

Format

A data frame with 10 rows and 8 variables:

subject_id subject identifier

project_id project identifier

wave_code assessment wave for the project

site_name mri site identifier

mri_info_folder mri folder on TSD

visit_age subject age at visit

cog cognitive score

sex subject sex

---

project_cols   *Function to extract project colors as hex codes*

Description

Function to extract project colors as hex codes

Usage

```
project_cols(...)
```

Arguments

...	Character names of project_colors

---

project_pal   *Return function to interpolate a project color palette*

Description

Return function to interpolate a project color palette

Usage

```
project_pal(palette = "main", reverse = FALSE, ...)
```

Arguments

palette	Character name of palette in project_palettes, or a vector of colour names (NDev, MemP, NCP, MoBa, Loci, MemC, ACon, S2C)
reverse	Boolean indicating whether the palette should be reversed
...	Additional arguments to pass to colorRampPalette()

scale_colour_lcbc *Colour scale constructor for lcbc colours*

Description

Colour scale constructor for lcbc colours

Usage

```
scale_colour_lcbc(palette = "main", discrete = TRUE, reverse = FALSE, ...)

scale_color_lcbc(palette = "main", discrete = TRUE, reverse = FALSE, ...)
```

Arguments

palette	Character name of palette in lcbc_palettes
discrete	Boolean indicating whether colour aesthetic is discrete or not
reverse	Boolean indicating whether the palette should be reversed
...	Additional arguments passed to ggplot2{discrete_scale()} or ggplot2{scale_colour_gradientn(used respectively when discrete is TRUE or FALSE

scale_colour_proj *Colour scale constructor for proj colours*

Description

Colour scale constructor for proj colours

Usage

```
scale_colour_proj(palette = "main", discrete = TRUE, reverse = FALSE, ...)

scale_color_proj(palette = "main", discrete = TRUE, reverse = FALSE, ...)
```

Arguments

palette	Character name of palette in project_palettes
discrete	Boolean indicating whether colour aesthetic is discrete or not
reverse	Boolean indicating whether the palette should be reversed
...	Additional arguments passed to ggplot2{discrete_scale()} or ggplot2{scale_colour_gradientn(used respectively when discrete is TRUE or FALSE

---

scale_fill_lcbc   *Fill scale constructor for lcbc colours*

Description

Fill scale constructor for lcbc colours

Usage

```
scale_fill_lcbc(palette = "main", discrete = TRUE, reverse = FALSE, ...)
```

Arguments

palette	Character name of palette in lcbc_palettes
discrete	Boolean indicating whether colour aesthetic is discrete or not
reverse	Boolean indicating whether the palette should be reversed
...	Additional arguments passed to ggplot2{discrete_scale()} or ggplot2{scale_colour_gradientn(used respectively when discrete is TRUE or FALSE

---

scale_fill_proj   *Fill scale constructor for proj colours*

Description

Fill scale constructor for proj colours

Usage

```
scale_fill_proj(palette = "main", discrete = TRUE, reverse = FALSE, ...)
```

Arguments

palette	Character name of palette in project_palettes
discrete	Boolean indicating whether colour aesthetic is discrete or not
reverse	Boolean indicating whether the palette should be reversed
...	Additional arguments passed to ggplot2{discrete_scale()} or ggplot2{scale_colour_gradientn(used respectively when discrete is TRUE or FALSE

---

theme_lcbc   *ggplot minimal theme for lcbc*

Description

ggplot minimal theme for lcbc

Usage

```
theme_lcbc(base_size = base_size_text)
```

Arguments

base_size   text size

---

theme_lcbc_dark   *ggplot minimal theme for lcbc*

Description

ggplot minimal theme for lcbc

Usage

```
theme_lcbc_dark(base_size = base_size_text)
```

Arguments

base_size   text size

---

theme_lcbc_dark_grid   *ggplot dark theme for lcbc*

Description

ggplot dark theme for lcbc

Usage

```
theme_lcbc_dark_grid(base_size = base_size_text)
```

Arguments

base_size   text size

---

theme_lcbc_dark_void   *ggplot minimal theme for lcbc*

Description

ggplot minimal theme for lcbc

Usage

```
theme_lcbc_dark_void(base_size = base_size_text)
```

Arguments

base_size   text size

---

theme_lcbc_grid   *ggplot theme for lcbc*

Description

ggplot theme for lcbc

Usage

```
theme_lcbc_grid(base_size = base_size_text)
```

Arguments

base_size   text size

---

theme_lcbc_void   *ggplot minimal theme for lcbc*

Description

ggplot minimal theme for lcbc

Usage

```
theme_lcbc_void(base_size = base_size_text)
```

Arguments

base_size   text size

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