Package 'puzzle'

October 14, 2022

Type Package

Title Assembling Data Sets for Non-Linear Mixed Effects Modeling

Version 0.0.1

Maintainer Mario Gonzalez Sales <mario@modelinggreatsolutions.com>

Description
To Simplify the time consuming and error prone task of assembling complex data sets for non-linear mixed effects modeling. Users are able to select from different absorption processes such as zero and first order, or a combination of both. Furthermore, data sets containing data from several entities, responses, and covariates can be simultaneously assembled.

License GPL-3

Encoding UTF-8

LazyData true

Imports utils, lubridate, stats, readxl, reshape, reshape2, sqldf, kableExtra, plyr, dplyr, tidyverse, readr

Suggests rmarkdown, knitr, devtools, testthat

RoxygenNote 6.1.1

URL https://github.com/syneoshealth/puzzle

BugReports https://github.com/syneoshealth/puzzle/issues

NeedsCompilation no

Author Olivier Barriere [aut],
Mario Gonzalez Sales [aut, cre]

Repository CRAN

Date/Publication 2019-11-28 16:10:02 UTC

R topics documented:

`df_cov` *A covariate data set.*

Description

A dataset containing covariate information.

Usage

```
df_cov
```

Format

A tibble with 12 rows and 4 variables:

ID Individual

TIME Time, in hours

VARIABLE Variable

VALUE Value of the variable

df_cov_start *Starting covariate data set.*

Description

A dataset containing covariate information.

Usage

```
df_cov_start
```

Format

A data frame with 4 rows and 3 variables:

ID Individual

VARIABLE Variable

VALUE Value of the variable

df_cov_time_dependent_start *A covariate data set to be used with time dependent covariates.*

Description

A dataset containing time dependent covariates.

Usage

```
df_cov_time_dependent_start
```

Format

A data frame with 6 rows and 4 variables:

ID Individual

VARIABLE Variable

VALUE Value of the variable

TIME Time, in hours

df_dose *A dose data set.*

Description

A dataset containing dose information.

Usage

```
df_dose
```

Format

A data frame with 12 rows and 3 variables:

ID Individual
TIME Time, in weeks
AMT Dose, in mg

df_dose_datetime *A dose data set including datetimes.*

Description

A dataset containing dose information in datetime format.

Usage

```
df_dose_datetime
```

Format

A data frame with 5 rows and 12 variables:

ID Individual
TRT Treatment label
DOSE Dose, in mg
PERIOD Period
DAY Day of adminsitration
AMT Dose, in mg
DATETIME Dta ein datetime format
TIMEPOINT Timepoint
COHORT Cohort
FORM Drug form
TREATMENT Treatment
FOOD Food status

df_dose_evid4 *A dose data set to be used with EVID=4.*

Description

A dataset containing dosing information.

Usage

```
df_dose_evid4
```

Format

A data frame with 418 rows and 10 variables:

ID Individual

PERIOD Period

TIMEPOINT Timepoint

TIME Time, in hours

AMT Dose, in mg

TRT Treatment label

DAY Day of adminsitration

SEQUENCE Sequence

TRT2 Treatment

EVID Evid value

df_dose_optional_columns *A dose data set to be used with optional columns.*

Description

A dataset containing dosing information.

Usage

```
df_dose_optional_columns
```

Format

A data frame with 4 rows and 6 variables:

ID Individual

TIME Time, in hours

AMT Dose, in mg

OCC Occasion

TIMEPOINT Timepoint

TRT Treatment

---

df_dose_start *A dose data set example.*

Description

A dataset containing dosing information.

Usage

```
df_dose_start
```

Format

A data frame with 4 rows and 3 variables:

ID Individual

TIME Time, in hours

AMT Dose, in mg

---

df_extra_times *An extra times data set example.*

Description

A dataset containing extra times.

Usage

```
df_extra_times
```

Format

A data frame with 251 rows and 1 variable:

TIME Time, in hours

df_extra_times_datetime

An extra times data set example with datetime format.

Description

A dataset containing extra times in datetime format.

Usage

```
df_extra_times_datetime
```

Format

A data frame with 20 rows and 1 variable:

ID Individual

DATETIME Datetime

TIMEPOINT Timepoint

df_extra_times_metabolite_evid4

An extra times metabolite data set to be used with EVID=4.

Description

A dataset containing extra times for an hypothetical metabolite.

Usage

```
df_extra_times_metabolite_evid4
```

Format

A data frame with 770 rows and 3 variable:

PERIOD Period

TIMEPOINT Timepoint

TIME Time, in hours

df_extra_times_parent_evid4 *An extra times parent data set to be used with EVID=4.*

Description

A dataset containing extra times for an hypothetical parent drug.

Usage

```
df_extra_times_parent_evid4
```

Format

A data frame with 770 rows and 3 variable:

PERIOD Period

TIMEPOINT Timepoint

TIME Time, in hours

df_extra_times_time *An extra times data set example.*

Description

A dataset containing extra times.

Usage

```
df_extra_times_time
```

Format

A data frame with 1040 rows and 3 variable:

ID Individual

TIME Time, in hours

TIMEPOINT Timepoint

df_metabolite_evid4 *A pharmacokinetic metabolite data set to be used with EVID=4.*

Description

A dataset containing pharmacokinetic information for an hypothetical metabolite.

Usage

```
df_metabolite_evid4
```

Format

A data frame with 1359 rows and 7 variables:

ID Individual
PERIOD Period
TIMEPOINT Timepoint
TIME Time, in hours
DV Drug concentration, in mg/L
TIMEDAY Timeday
DAY Day of adminsitration

df_parent_evid4 *A pharmacokinetic parent data set to be used with EVID=4.*

Description

A dataset containing pharmacokinetic information for an hypothetical parent drug.

Usage

```
df_parent_evid4
```

Format

A data frame with 1359 rows and 7 variables:

ID Individual
PERIOD Period
TIMEPOINT Timepoint
TIME Time, in hours
DV Drug concentration, in mg/L
TIMEDAY Timeday
DAY Day of adminsitration

df_pd_start *An starting pharmacoynamic data set example.*

Description

A dataset containing pharmacodynamic observations.

Usage

```
df_pd_start
```

Format

A tibble with 6 rows and 3 variable:

ID Individual

TIME Time, in hours

DV Response, ng/mL

df_pk *A pharmacokinetic data set.*

Description

A dataset containing pharmacokinetic information.

Usage

```
df_pk
```

Format

A tibble with 132 rows and 4 variable:

ID Individual

TIMEPOINT Timepoint

TIME Time, in hours

DV Drug concentration, ng/mL

df_pk_datetime *A pharmacokinetic data set example in datetime format.*

Description

A dataset containing pharmacokinetic information.

Usage

```
df_pk_datetime
```

Format

A data frame with 65 rows and 7 variable:

ID Individual

DV Response, ng/mL

DATETIME Datetime

TIMEPOINT Timepoint

DAY Day

PERIOD Period

BLQ I a BLQ?

LLOQ Lower limit of quantification, ng/mL

df_pk_metabolite *A pharmacokinetic data set of metabolite data.*

Description

A dataset containing pharmacokinetic information for an hypothetical metabolite.

Usage

```
df_pk_metabolite
```

Format

A data frame with 10 rows and 3 variable:

ID Individual

TIME Time, in hours

DV Drug concentration, ng/mL

df_pk_optional_columns *A pharmacokinetic data set to be used with optional columns.*

Description

A dataset containing pharmacokinetic information.

Usage

```
df_pk_optional_columns
```

Format

A data frame with 12 rows and 5 variable:

ID Individual

TIME Time, in hours

DV Drug concentration, ng/mL

OCC Occasion

TIMEPOINT Timepoint

df_pk_parent *A pharmacokinetic data set for an hypothetical parent drug.*

Description

A dataset containing pharmacokinetic information.

Usage

```
df_pk_parent
```

Format

A data frame with 12 rows and 3 variable:

ID Individual

TIME Time, in hours

DV Drug concentration, ng/mL

df_pk_start *A pharmacokinetic data set example.*

Description

A dataset containing pharmacokinetic information.

A dataset containing pharmacokinetic information.

Usage

```
df_pk_start
```

```
df_pk_start
```

Format

A tibble with 12 rows and 3 variable:

ID Individual

TIME Time, in hours

DV Response, ng/mL

df_response1 *A pharmacodynamic data set.*

Description

A dataset containing pharmacodynamic information for response 1.

Usage

```
df_response1
```

Format

A data frame with 6 rows and 3 variable:

ID Individual

TIME Time, in hours

DV Response, ng/mL

df_response2 *A pharmacodynamic data set.*

Description

A dataset containing pharmacodynamic information for response 2.

Usage

```
df_response2
```

Format

A data frame with 6 rows and 3 variable:

ID Individual

TIME Time, in hours

DV Response, seconds

df_response3 *A pharmacodynamic data set.*

Description

A dataset containing pharmacodynamic information for response 3.

Usage

```
df_response3
```

Format

A data frame with 6 rows and 3 variable:

ID Individual

TIME Time, in hours

DV Response, in hours

puzzle *puzzle*

Description

Build pharmacometric data sets from basic tabulated files

Usage

```
puzzle(directory = NULL, order, coercion = list(name = NULL, sep =
  ","), optionalcolumns = NULL, pk = list(name = NULL, data = NULL),
  dose = list(name = NULL, data = NULL), cov = list(name = NULL, data =
  NULL), pd = list(name = NULL, data = NULL), extratimes = list(name =
  NULL, data = NULL), nm = list(name = NULL), fillcolumns = NULL,
  nocoercioncolumns = NULL, norepeatcolumns = NULL, initialindex = 0,
  na.strings = "N/A", arrange = "ID,TIME,CMT,desc(EVID)",
  datetimeformat = "%Y-%m-%d %H:%M:%S", timeunits = "hours",
  timezone = Sys.timezone(), ignore = "C", missingvalues = ".",
  parallel = TRUE, verbose = FALSE, username = NULL)
```

Arguments

directory	path to your directory
order	define the absorption order, can be 0, 1, c(0,1), or c(1,1)
coercion	define name for coercion file
optionalcolumns	define optional columns
pk	define the required file containing the pk information. It can be a .csv or an .xlsx file
dose	define the required file containing the dose information. It can be a .csv, an .xlsx file or an R object.
cov	define the optional file containing the covariate information. It can be a .csv, an .xlsx file or an R object.
pd	define the optional file containing the pd information. It can be a .csv, or a .xlsx file.
extratimes	define the optional file containing the additional times. It can be a .csv, or a .xlsx file.
nm	name of output file generated by puzzle
fillcolumns	define columns to be filled
nocoercioncolumns	define columns to be dropped from the coercion file
norepeatcolumns	define columns not to be repeated
initialindex	define the lower category of categorical covariates

na.strings	define value for na
arrange	define how the columns should be arranged
datetimeformat	define format for date times
timeunits	define time units if needed
timezone	define timezone
ignore	define ignore value
missingvalues	define missing value
parallel	define parallel zero + first order absorption
verbose	define verbose
username	define person performing the assembling

Value

a pharmacometrics ready data set

Examples

```
## Not run:
nm = list(pk = list(parent=as.data.frame(puzzle::df_pk_start)),
          dose=as.data.frame(puzzle::df_dose_start),
          cov=as.data.frame(puzzle::df_cov_start))
puzzle(directory=file.path(tempdir()),
       order=c(0),
       pk=list(data=nm$pk),
       dose=list(data=nm$dose),
       cov=list(data=nm$cov))

## End(Not run)
```

Index