

Package ‘DDModeling’

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Type Package

Title A package for the easy simulation of drift diffusion processes in cognitive psychology

Version 0.1.0

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Description A package for the easy simulation of drift diffusion processes in cognitive psychology.
It grants access to easy modelling and fitting.

License What license is it under?

Encoding UTF-8

LazyData true

Imports Rcpp (>= 1.0.2), parallel, RSAGA

LinkingTo Rcpp

RoxygenNote 6.1.1

Collate 'package-DDModeling.R'

'DDModel.R'

'DDRep.R'

'DDFitPar.R'

'DDFit.R'

'Sim_DDModel.R'

'Fit_DDModel.R'

'Get_Grid.R'

'RcppExports.R'

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DDFit-class	<i>An S4 class to represent a Fit of a given DDRep to a model</i>
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Description

An S4 class to represent a Fit of a given DDRep to a model

Slots

INP_REP DDRep object containing the to be fitted data
 FIT_REP DDRep object containing the fitted data
 MODEL DDModel object containing the model that was used in the fit
 FIT DDFitPar object containing information regarding the fit

DDFitPar-class	<i>An S4 class to represent a drift diffusion model</i>
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Description

An S4 class to represent a drift diffusion model

Slots

INP_P data.frame containing the to be fitted parameter
 FIT_P data.frame containing the fitted parameter
 FIT_V numeric representing the value of the Fit
 FIT_N numeric representing the number of evaluation points used in the fit

DDModel	<i>Function to generate a DDModel S4 class object</i>
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Description

Function to generate a DDModel S4 class object

Usage

```
DDModel(model = NULL, task = NULL, conditions = NULL,
         parameter = NULL, dt = NULL, sigma = NULL, CDF_perc = NULL,
         CAF_perc = NULL)
```

Arguments

model	character of the name of the Model to be used (legitimate choices are "DSTP", "DMC", "SSP")
task	character specifying a specific predefined modelstructure ("flanker")
conditions	character vector of the names of conditions
parameter	character vector of the names of custom parameters
dt	numeric representing the integration constant of the diffusion process
sigma	numeric representing the diffusion constant of the diffusion process
CDF_perc	Numeric vector specifying the CDF percentiles (note: numbers equal to absolute percentiles!)
CAF_perc	Numeric vector specifying the CAF percentiles (note: numbers equal to boundaries of segments!)

Value

DDMODEL object

DDModel-class	<i>An S4 class to represent a drift diffusion model</i>
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Description

An S4 class to represent a drift diffusion model

Slots

ID	character that represents the name of the model to be used (i.e. "DSTP", "DMC", "SSP")
MM	list of matrix that contain values which map custom parameters to corresponding modelparameters
DM	matrix that contains the domain of all custom parameters (and grid size steps)
SP	matrix that contains a set of simulation-parameters important for simulation
RF	list of numeric vectors that contain the percentiles of the representation.

DDModeling	<i>DDModeling Package</i>
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Description

DDModeling package

Details

A package for the easy integration of drift diffusion models in cognitive psychology

Author(s)

Thomas Pelzer

DDRep-class	<i>An S4 class to represent a representation of a drift diffusion simulation</i>
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Description

An S4 class to represent a representation of a drift diffusion simulation

Slots

RAW list of data.frames that contain the RAW data (i.e. 3 coloumns: \$cond \$Resp \$time)

REP list of data.frames that contain data representations (CDF and CAF)

RF list of numeric vectors that contain the percentiles of the representation.

Fit_DDModel	<i>Function to fit a given DDRep to a given DDModel</i>
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Description

Function to fit a given DDRep to a given DDModel

Usage

```
Fit_DDModel(model = NULL, rep = NULL, grid_path = NULL)
```

Arguments

model	DDModel object
rep	DDRep object
grid_path	path to a direcotey containing a .GRID fileset. If NULL the model will be fitted using 20 randomly drawn startparametersets from the model-DOMAIN.

Value

DDFit object

Get_Grid

*Function to generate a Grid from a given DDMModel***Description**

After calling the function the user will be instructed to enter the step sizes corresponding to the parameters listed in the used model. Step size should always be of an integer value, as they represent the number of evaluation points per parameter that are used in the grid. Note that in the given function the evaluation points are always equally spaced concerning the corresponding parameter domain in the used model. Therefore, if one would like to specify the used evaluation points it is advised to specify the domain in the model.

Usage

```
Get_Grid(model = NULL, path = NULL, name = NULL)
```

Value

No direct return value inside of the R-session. The calculated Grid will be saved in the specified path!

Slots

model DDMModel object

path character that specifies the full path to the directory in which the Grid should be saved

name character that represents the name (and subdirectory in path) of the Grid

Sim_DDModel

*Function to simulate a given DDMModel by initializing with random parameters***Description**

Function to simulate a given DDMModel by initializing with random parameters

Usage

```
Sim_DDModel(model = NULL, trials = NULL)
```

Arguments

model DDMModel Object

trials Numeric specifying the number of trials per condition

Value

DDRep object

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