# Package 'circumstance'

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# Description

circumstance provides tools for parallelizing certain pomp calculations.

continue

Continue an iterative calculation

#### **Description**

Continue an iterative computation where it left off.

### Usage

```
continue(object, ...)
## S4 method for signature 'mif2List'
continue(object, ..., .options.future = list(seed = TRUE))
## S4 method for signature 'pmcmcList'
continue(object, ..., .options.future = list(seed = TRUE))
```

2 mif2

#### **Arguments**

object the result of an iterative **pomp** computation

additional arguments will be passed to the underlying method. This allows one to modify parameters used in the original computations.

options.future

list of options for the **doFuture** backend. See %dofuture% for details.

#### See Also

mif2

mif2

Parallel iterated filtering

### **Description**

Runs multiple instances of mif2 using foreach.

# Usage

```
## S4 method for signature 'ANY,data.frame'
mif2(data, starts, ..., .options.future = list(seed = TRUE))
## S4 method for signature 'ANY,missing'
mif2(data, starts, ...)
## S4 method for signature 'pompList,missing'
mif2(data, ..., .options.future = list(seed = TRUE))
## S4 method for signature 'pfilterList,missing'
mif2(data, ..., .options.future = list(seed = TRUE))
## S4 method for signature 'mif2List,missing'
mif2(data, ..., .options.future = list(seed = TRUE))
```

#### **Arguments**

```
data passed to pomp::mif2

starts data frame containing parameters at which to begin iterated filtering

... all additional arguments are passed to pomp::mif2

.options.future

list of options for the doFuture backend. See %dofuture% for details.
```

## See Also

```
pomp::mif2.
```

pfilter 3

pfilter

Parallel particle filter computations

#### Description

Runs multiple instances of pfilter using foreach.

#### Usage

```
## S4 method for signature 'ANY,numeric'
pfilter(data, Nrep, ..., .options.future = list(seed = TRUE))
## S4 method for signature 'ANY,missing'
pfilter(data, Nrep, ...)
## S4 method for signature 'pompList,numeric'
pfilter(data, Nrep, ..., .options.future = list(seed = TRUE))
## S4 method for signature 'pompList,missing'
pfilter(data, Nrep, ...)
```

### **Arguments**

```
data     passed to pomp::pfilter
Nrep     number of replicate particle filter computations to run. By default, Nrep = 1.
...     all additional arguments are passed to pomp::pfilter
.options.future
```

list of options for the **doFuture** backend. See %dofuture% for details.

#### See Also

```
pomp::pfilter.
```

#### **Examples**

```
library(circumstance)
library(doFuture)

ou2() -> ou2

plan(sequential)
system.time(ou2 |> pfilter(Np=10000,Nrep=6) -> pfs)

plan(multicore)
system.time(ou2 |> pfilter(Np=10000,Nrep=6) -> pfs)
```

4 plot\_matrix

plot\_matrix

A scatterplot matrix with densities on the diagonal.

#### **Description**

A special scatterplot matrix.

# Usage

```
plot_matrix(data, ...)
## S3 method for class 'list'
plot_matrix(
  data,
 marg.exp = 0.02,
  labels = names(data),
  alpha = 1,
 pch = 16,
  size = unit(0.03, "npc"),
)
## S3 method for class 'data.frame'
plot_matrix(
  data,
 marg.exp = 0.02,
  labels = names(data),
  alpha = 1,
 pch = 16,
  size = unit(0.03, "npc"),
)
## S3 method for class 'plotmatrix'
print(x, newpage = is.null(vp), vp = NULL, ...)
```

# Arguments

```
data Data to plot.
... optional arguments, passed to hist.

marg.exp Fraction by which to expand the plot at the margins.

labels Names of variables plotted.

alpha, pch, size

Refer to the plotted points in the scatterplots.

x plot_matrix object to display.
```

pmcmc 5

newpage logical; if TRUE, grid.newpage() will be called before the graphics are drawn.

vp viewport to use. See viewport.

# **Examples**

```
# requires dplyr
 library(dplyr)
 data.frame(
  a=rexp(n=1000, rate=1/3),
  b=rnorm(1000)
 ) |>
  mutate(
     c=a+b^2,
     d=a-b^3
  ) -> x
 print(plot_matrix(x,alpha=0.2))
 g <- plot_matrix(</pre>
  x[-2],
  labels=c(
     expression(alpha),
     expression(beta),
     expression(phi)
  ),
  alpha=0.3
 print(g)
 print(plot_matrix(as.list(x),alpha=0.2,breaks="scott"))
```

pmcmc

Particle Markov chain Monte Carlo in parallel

#### **Description**

Runs multiple instances of pmcmc using foreach.

### Usage

```
## S4 method for signature 'ANY,data.frame'
pmcmc(data, starts, ..., .options.future = list(seed = TRUE))
## S4 method for signature 'ANY,missing'
pmcmc(data, starts, ...)
## S4 method for signature 'pompList,missing'
```

6 pmcmc

```
pmcmc(data, ..., .options.future = list(seed = TRUE))
## S4 method for signature 'pfilterList,missing'
pmcmc(data, ..., .options.future = list(seed = TRUE))
## S4 method for signature 'pmcmcList,missing'
pmcmc(data, ..., .options.future = list(seed = TRUE))
```

#### **Arguments**

data passed to pomp::pmcmc

starts data frame containing parameters at which to begin iterated filtering

... all additional arguments are passed to pomp::pmcmc
.options.future

list of options for the  $\bf doFuture$  backend. See  $\tt %dofuture \tt \%$  for details.

#### See Also

pomp::pmcmc.

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