Package ‘solveR’

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Type Package

Title A solver of a system of equations (entered as formulas)

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Description This package allows to solve a system of equations (entered as a list of formulas) where an equal number of endogenous variables is specified as a list. The parameters of the equations are specified as a list exogenous variables. The system is solved using Newton's method.

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Encoding UTF-8

LazyData true

RoxygenNote 6.1.1.9000

Suggests testthat (>= 2.1.0)

R topics documented:

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errors *Errors of a list of formulas.*

Description

errors returns all differences between the left and right sides of a list of formula (errors).

Usage

```
errors(endogenous, exogenous, formulas)
```

Arguments

`endogenous`	A list of variables to be used in evaluation (variables may be scalars, vectors or matrices)
`exogenous`	A list of parameters to be used in evaluation
`formulas`	A list of formulas

Value

A list of real numbers on the same skeleton as the endogenous variables

Examples

```
errors(formulas =
          list(price = price ~ 0.3 * variablecost + coefficient1,
               variablecost  = variablecost ~ 0.5 * price + coefficient2),
       endogenous = list(price = 1, variablecost=0.4),
       exogenous = list(coefficient1=0.56, coefficient2=0.7))
```

solver *solver: A package solving a system of equations.*

Description

The solver package provides two important functions: rsolve (which solves a system) and errors (which evaluates error terms)

solveSystem *Solve a system of equations.*

Description

`solveSystem` returns a set of endogenous variables that solve the system.

Usage

```
solveSystem(formulas, endogenous, exogenous, lowerBounds = NULL,
  upperBounds = NULL, maxIterations = 100, maxError = 5e-09)
```

Arguments

`formulas`	A list of formulas
`endogenous`	A list of variables to be used in evaluation (variables may be scalars, vectors or matrices)
`exogenous`	A list of parameters to be used in evaluation
`lowerBounds`	A list of lower bounds for endogenous variables
`upperBounds`	A list of upper bounds for endogenous variables
`maxIterations`	A maximum number of times the Newton algorithm should be applied (default value = 100)
`maxError`	Maximum total absolute error of all equations (default value = 5e-9)

Value

A vector of real numbers

Examples

```
solveSystem(formulas =
          list(price = price ~ 0.3 * variablecost + coefficient1,
               variablecost  = variablecost ~ 0.5 * price + coefficient2),
       endogenous = list(price = 1, variablecost=0.4),
       exogenous = list(coefficient1=0.56, coefficient2=0.7))
solveSystem(formulas =
          list(price = price ~ 0.3 * variablecost + coefficient1,
               variablecost  = variablecost ~ 0.5 * price + coefficient2),
      endogenous = list(price = c(wheat=1, rice=4), variablecost=c(wheat=0.4, rice=0.2)),
     exogenous = list(coefficient1=c(wheat=0.56, rice=4), coefficient2=c(wehat=0.7, rice=0.9)))
```

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