

# Package ‘andrews’

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**Type** Package

**Title** Andrews curves

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**Depends** R (>= 2.9.1)

**Description** Andrews curves for visualization of multidimensional data

**License** GPL (>= 2)

**LazyLoad** yes

**Repository** CRAN

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andrews

*Andrews curves***Description**

Andrews curves for visualization of multidimensional data

**Usage**

```
andrews(df, type=1, clr=NULL, step=100, ymax=10, main=NULL, sub=NULL)
```

**Arguments**

|                   |                                                                                                                                                                                                                                                                                                                                                           |
|-------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <code>df</code>   | data frame.                                                                                                                                                                                                                                                                                                                                               |
| <code>type</code> | type of curve<br>1: $f(t)=x1/(2^{0.5})+x2*\sin(t)+x3*\cos(t)+x4*\sin(2*t)+x5*\cos(2*t)+\dots$<br>2: $f(t)=x1*\sin(t)+x2*\cos(t)+x3*\sin(2*t)+x4*\cos(2*t)+\dots$<br>3: $f(t)=x1*\cos(t)+x2*\cos((2*t)^{0.5})+x3*\cos((3*t)^{0.5})+\dots$<br>4: $f(t)=1/(2^{0.5})*(x1+x2*(\sin(t)+\cos(t))+x3*(\sin(t)-\cos(t))+x4*(\sin(2*t)+\cos(2*t)+\cos(2*t))+\dots)$ |
| <code>clr</code>  | number of column id date frame for color of curves.                                                                                                                                                                                                                                                                                                       |
| <code>step</code> | smoothness of curves.                                                                                                                                                                                                                                                                                                                                     |
| <code>ymax</code> | maximum of y coordinate.                                                                                                                                                                                                                                                                                                                                  |
| <code>main</code> | main title for the plot.                                                                                                                                                                                                                                                                                                                                  |
| <code>sub</code>  | sub title for the plot.                                                                                                                                                                                                                                                                                                                                   |

**Details**

Andrews curves transform multidimensional data into curves. This package presents four types of curves.

**Author(s)**

Jaroslav Myslivec <jaroslav.myslivec@upce.cz>

**References**

- Andrews, D. F. (1972) Plots of High-Dimensional Data. *Biometrics*, vol. 28, no. 1, pp. 125-136.
- Khattree, R., Naik, D. N. (2002) Andrews Plots for Multivariate Data: Some New Suggestions and Applications. *Journal of Statistical Planning and Inference*, vol. 100, no. 2, pp. 411-425.

**Examples**

```
if(is.R()) {
  data(iris)
} else {
  iris <- iris.df
}
andrews(iris, clr=5, ymax=3)
andrews(iris, type=4, clr=5, ymax=2)
```

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normalize

*Nomralization*

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**Description**

Normalization of variable.

**Usage**

```
normalize(ar)
```

**Arguments**

**ar** numeric variable.

**Details**

Normalization of variable:  $ar \leftarrow (ar - \min(ar)) / (\max(ar) - \min(ar))$

**Value**

Returns normalized variable.

**Author(s)**

Jaroslav Myslivec <jaroslav.myslivec@upce.cz>

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|          |                      |
|----------|----------------------|
| numarray | <i>Numeric array</i> |
|----------|----------------------|

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**Description**

Extracts numeric array from data frame.

**Usage**

```
numarray(df)
```

**Arguments**

df                    data frame.

**Details**

Extracts numeric array from data frame.

**Value**

Returns numeric array.

**Author(s)**

Jaroslav Myslivec <jaroslav.myslivec@upce.cz>

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|           |                                    |
|-----------|------------------------------------|
| selectand | <i>Selecting in Andrews curves</i> |
|-----------|------------------------------------|

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**Description**

Selecting object utility in Andrews curves

**Usage**

```
selectand(df, type=1, step=100, ncol=0, from=0, to=1, col=2)
```

**Arguments**

df                    data frame.  
type                  type of curve.  
step                  smoothness of curves.  
ncol                  number of column in data frame for selection.  
from                  from value.  
to                    to value.  
col                   color of selected objects.

**Details**

Define which objects will be selected (colored) in Andrews curves.

**Author(s)**

Jaroslav Myslivec <jaroslav.myslivec@upce.cz>

**Examples**

```
if(is.R()) {  
  data(iris)  
} else {  
  iris <- iris.df  
}  
andrews(iris,clr=5,ymax=3)  
selectand(iris,ncol=1,from=5,to=5.5,col=1)
```

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