

# Package ‘BiplotGUI’

September 22, 2009

**Type** Package

**Title** Interactive Biplots in R

**Version** 0.0-5

**Date** 2009-09-19

**Author** Anthony la Grange, with some Fortran code adapted by NJ le Roux from the original by PJ Rousseeuw, I Ruts and JW Tukey

**Maintainer** Anthony la Grange <amlg@sun.ac.za>

**Depends** R (>= 2.7.0), deldir, rgl (>= 0.79), tcltk, tcltk2 (>= 1.0-7), tkrplot (>= 0.0-18)

**Imports** colorspace, KernSmooth, MASS

**Description** Provides a GUI with which users can construct and interact with biplots.

**License** GPL (>= 3)

**LazyLoad** yes

**OS\_type** windows

**SystemRequirements** windows

**URL** <http://biplotgui.r-forge.r-project.org/>

**Repository** CRAN

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BiplotGUI-package *BiplotGUI: Interactive Biplots in R*

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### Description

A GUI with which to construct and interact with biplots.

### Details

Package:	BiplotGUI
Type:	Package
Version:	0.0-5
Date:	2009-09-19
License:	GPL-3 or later
LazyLoad:	yes

The `Biplots` function initialises the GUI.

At present, **BiplotGUI** is intended to be run under Windows. In Windows, it runs marginally better in SDI mode, rather than MDI mode.

### Author(s)

Author and maintainer: Anthony la Grange

Includes Fortran code adapted by NJ le Roux from the original by PJ Rousseeuw, I Ruts and JW Tukey.

### References

Gower JC, Hand DJ (1996). *Biplots*. Monographs on Statistics and Applied Probability. Chapman & Hall, London, UK.

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AntiqueFurniture *Antique furniture data set*

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### Description

Microscopic measurements made on Old-Cape antique furniture. The furniture are made from three types of wood.

### Usage

`data(AntiqueFurniture)`

**Format**

A data frame with 37 observations on the following 7 variables.

**Species** The tree species. A factor with levels Obul, Oken, Opor.

**VesD** Tangential vessel diameter in micrometres. A numeric vector.

**VesL** Vessel element length in micrometres. A numeric vector.

**FibL** Fibre length in micrometres. A numeric vector.

**RayH** Ray height in micrometres. A numeric vector.

**RayW** Ray width in micrometres. A numeric vector.

**NumVes** The number of vessels per millimetre squared. A numeric vector.

**Details**

During the period 1652–1900, wood from both the indigenous *Ocotea bullata* (‘Stinkwood’) and the imported *Ocotea perosa* (‘Imbuia’) were used to make Old-Cape furniture in South Africa. The data set contains mean measurements made on such wood, together with a third species, *Ocotea kenyensis*. Twenty samples of *Ocotea bullata* (Obul), 10 samples of *Ocotea perosa* (Opor) and 7 samples of *Ocotea kenyensis* (Oken) were inspected microscopically, with six variables measured on each sample 50 times over. The data are the mean measurements over the 50 repetitions.

**Source**

Swart JPJ (1985). *Lauracea*. Unpublished Master’s thesis, Stellenbosch University, Stellenbosch, South Africa.

**References**

Burden M, Gardner S, Le Roux NJ, Swart JPJ (2001). “Ou-Kaapse meubels en stinkhoutidentifikasie: Moontlikhede met kanoniese veranderlike-analise en bistippings.” *South African Journal of Cultural History*, **15**, 50–73.

Le Roux NJ, Gardner S (2005). “Analysing your multivariate data as a pictorial: A case for applying biplot methodology?” *International Statistical Review*, **73**(3), 365–387.

**Examples**

```
data(AntiqueFurniture)
## Not run:
Biplots(Data = AntiqueFurniture[, -1],
         groups = AntiqueFurniture[, 1])
## End(Not run)
```

**Description**

Initialises a GUI with which to construct and interact with biplots.

**Usage**

```
Biplots(Data, groups = rep(1, nrow(Data)),
        PointLabels = rownames(Data),
        AxisLabels = colnames(Data), excel = NULL,
        ExcelGroupsCol = 0)
```

**Arguments**

<code>Data</code>	A matrix or data frame of numerical data. Its $n$ samples (observations) will be represented as points in the biplots; its $p$ variables will be represented as calibrated biplot axes.
<code>groups</code>	A vector or factor of length $n$ specifying the group membership of the samples. By default, all samples are taken to be from a single group. The group labels are taken from this argument, deprecated to 14 characters each.
<code>PointLabels</code>	A vector of length $n$ specifying the point labels. By default, the point labels are taken to be the row names of <code>Data</code> .
<code>AxisLabels</code>	A vector of length $p$ specifying the axis labels. By default, the axis labels are taken to be the column names of <code>Data</code> , deprecated to 14 characters each.
<code>excel</code>	Deprecated as from version 0.0-4.1.
<code>ExcelGroupsCol</code>	Deprecated as from version 0.0-4.1.

**Details**

`Biplots` is the sole function of the **BiplotGUI** package. The function initialises the GUI for a particular data set. All further options are available from within the GUI. The GUI features themselves are documented in a separate manual available from the Help menu of the GUI. The manual is also included as a vignette to the package.

Due to the removal of the **xlsReadWrite** package from CRAN, the direct import of data from Excel 1997-2003 files has been deprecated as from **BiplotGUI** 0.0-4.1. As an alternative mechanism, consider the **RODBC** package.

At present, **BiplotGUI** is intended to be run under Windows. In Windows, it runs marginally better in SDI mode, rather than MDI mode.

**Author(s)**

Author and maintainer: Anthony la Grange <amlg@sun.ac.za>, <<http://biplotgui.r-forge.r-project.org/>>

## References

Gower JC, Hand DJ (1996). *Biplots*. Monographs on Statistics and Applied Probability. Chapman & Hall, London, UK.

## Examples

```
data(Countries)
## Not run: Biplots(Data = Countries)

data(AntiqueFurniture)
## Not run:
Biplots(Data = AntiqueFurniture[, -1],
        groups = AntiqueFurniture[, 1])
## End(Not run)

data(FighterAircraft)
## Not run: Biplots(Data = FighterAircraft)
```

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Countries

*Countries data set*

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## Description

Eight variables measured on the countries with the 15 largest economies by purchasing price parity (PPP) gross domestic product (GDP) in 2007.

## Usage

```
data(Countries)
```

## Format

A data frame with 15 observations on the following 8 variables.

**GDP** Purchasing price parity (PPP) gross domestic product (GDP) per capita in 2007 US dollars. A numeric vector.

**HIV.Aids** HIV/Aids prevalence as a percentage of the population. A numeric vector.

**Life.exp**. Life expectancy in years. A numeric vector.

**Mil**. Military spending as a percentage of GDP. A numeric vector.

**Oil.cons**. Oil consumption in barrels per annum per capita. A numeric vector.

**Pop**. Population in millions. A numeric vector.

**Te1**. Number of fixed line telephones per 1000 people. A numeric vector.

**Unempl**. Percentage unemployed. A numeric vector.

**Details**

The data have been derived largely from the 2007 CIA World Factbook, and are intended for illustrative purposes only.

**Source**

Agency C (2007). *The World Factbook: 2007, CIA's 2006*, Potomac Books, Washington, DC, USA.

**Examples**

```
data(Countries)
## Not run: Biplots(Data = Countries)
```

---

FighterAircraft      *Fighter aircraft data set*

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**Description**

Eight variables measured on 21 types of US fighter aircraft.

**Usage**

```
data(FighterAircraft)
```

**Format**

A data frame with 21 observations on the following 4 variables.

**SPR** Specific power, proportional to power per unit weight. A numeric vector.

**RGF** Flight range factor. A numeric vector.

**PLF** Payload as a fraction of gross weight. A numeric vector.

**SLF** Sustained load factor. A numeric vector.

**Details**

Measurements of four variables on 21 of 22 types of US fighter aircraft extracted by Cook and Weisberg (1982) from a report by Stanley and Miller (1979).

**Source**

Stanley W, Miller M (1979). "Measuring technological change in jet fighter aircraft." *Technical Report R-2249-AF*, RAND Corporation, Santa Monica, CA, USA.

## **References**

Cook RD, Weisberg S (1982). *Residuals and influence in regression*. Monographs on Statistics and Applied Probability. Chapman & Hall, London, UK.

Gower JC, Hand DJ (1996). *Biplots*. Monographs on Statistics and Applied Probability. Chapman & Hall, London, UK.

## **Examples**

```
data(FighterAircraft)
## Not run: Biplots(Data = FighterAircraft)
```

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