Package ‘colorhcplot’

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Title Colorful Hierarchical Clustering Dendrograms
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Description Build dendrograms with sample groups highlighted by different colors. Visualize results of hierarchical clustering analyses as dendrograms whose leaves and labels are colored according to sample grouping. Assess whether data point grouping aligns to naturally occurring clusters.
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Introduction to the COLORHCPLLOT Package

Description

This is a simple one-function package. Please, refer to the colorhcplot() function manual to check how the function works.

Details

This package contains the function colorhcplot. This function generates simple colorful dendrograms and requires only 2 mandatory arguments: hc and fac. The argument hc is the result of a hclust() call, while fac is a factor defining the groups. Therefore, the number of leaves of the dendrogram has to be identical to the length of fac (i.e., length(hc$labels) == length(fac) has to be TRUE). The function colorhcplot() employs a custom color palette. However, users can specify a custom list of colors.

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See Also

colorhcplot

Colorful Hierarchical Clustering Dendrograms

Description

This function takes a "hclust-class" object and a factor describing the groups as arguments and generates colorful dendrograms in which leaves belonging to different groups are identified by colors. This function produces a plot that allows to easily detect if leaves that clustered together also belong to the same group.

Usage

colorhcplot(hc, fac, hang = 0.1, 
main = "Cluster Dendrogram", 
colors = NULL, lab.cex = 1, 
ylim = NULL, lwd = 3, 
las = 1, lab.mar = 0.55)
colorhcplot

Arguments

- **hc**: hclust-class object, typically the result of a `hclust()` function call.
- **fac**: factor that defines the grouping.
- **hang**: hang value, as in hclust. hang is the fraction of the plot height by which labels should hang below the rest of the plot. A negative value will align all labels at the bottom of the plot.
- **main**: title of the dendrogram plot.
- **colors**: NULL or a character vector of length 1 or having the same length as the number of levels in fac. This argument defines the palette for the plot.
- **lab.cex**: numeric value for adjusting the font size of the leaf labels (and legend text).
- **ylim**: numeric, defines the minimum and maximum value of the y-axis of the plot.
- **lwd**: numeric value that defines the width (in points) of the lines of the dendrogram.
- **las**: graphic parameter for the orientation of the y-axis tick labels.
- **lab.mar**: fraction of the plot area that is reserved for the labels (at the bottom of the plot).

Details

In order to generate a colorful dendrogram, the colorhcplot() function requires 2 mandatory arguments: hc and fac. hc is the result of a hclust() call, while fac is a factor defining the groups. The number of leaves of the dendrogram has to be identical to the length of fac.

Value

Calling colorhcplot() returns a colorful dendrogram plot

Note


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See Also

- hclust

Examples

```r
### Example 1, using the USArrests dataset
data(USArrests)
hc <- hclust(dist(USArrests), "ave")
fac <- as.factor(c(rep("group 1", 10),
                   rep("group 2", 10),
                   rep("unknown", 30)))
plot(hc)
```
### Example 2: use the "ward.D2" algorithm and the UScitiesD dataset

data(UScitiesD)

city.D2 <- hclust(UScitiesD, "ward.D2")
fac.D2 <- as.factor(c(rep("group1", 3),
                    rep("group2", 7)))

plot(city.D2, hang=-1)
colorhcplot(city.D2, fac.D2, color = c("chartreuse2", "orange2"))
colorhcplot(city.D2, fac.D2, color = "gray0", lab.cex = 1.2, lab.mar = 0.75)

### Example 3: use gene expression data

data(geneData, package="colorhcplot")

exprs <- geneData$exprs
fac <- geneData$fac

hc <- hclust(dist(t(exprs)))
colorhcplot(hc, fac, main = "Control vs. Tumor Samples")

geneData

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**Sample Gene Expression Dataset**

**Description**

This is a gene expression dataset simulating information about 499 gene probes and 13 samples, from an Affymetrix U95v2 chip. Data are made up, as well as sample labels. This is adapted from the Biobase-package, version 2.32.0.

**Usage**

data("geneData")

**Format**

A list of 2, including gene expression data (`$exprs`) and the corresponding grouping factor (`$fac`).

**Source**

Data were adapted from the Biobase package version 2.32.0, and prepared by the J. Ritz Laboratory (S. Chiaretti).
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