

g.princals

It's R-script to improve aesthetic plotting of princals function of Gifi package

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Proposal

g.princals is a function designed to address aesthetic issues encountered when using plot.princals of "Gifi" package(1), which exclusively generates plots using a "graphic" package. g.princals leverages the power of the ggplot2 package, renowned for producing high-quality visuals. this function just produce, transplot, scree plot, loadplot and biplot for hierarchical categoric variables(2).

Instruction

"g.princals" replaces the default "plot" function in R, generating customized graphics for customer items.

- x: call a object was generated by princals(dataset).
- plot.dim: Vector with dimensions to be plotted with the default condition being set to c(1, 2).
- var.subset: with the default condition being set to "all"
- max.plot.array: with the default condition being set to 2.
- stepvec: Vector whether step function should be plotted (see details in princals/R Documentation).with the default condition being set to NA.
- col.lines: colour of line. Default condition being set to "black".
- main: Title of picture. Default condition being set to name of princals object.
- show: Options to choose are TRUE,FALSE,T,F,1 and 0. Default condition being set to "1" mean it shows plots.
- save: Options to choose are TRUE,FALSE,T,F,1 and 0. Default condition being set to "1" mean it saves plots.
- name: label or name of princals object. Default condition being set to name of princals object.
- units: unit of width/height in 'mm'
- width: Default condition being set to 250mm.
- height: Default condition being set to 250mm.
- res: resolution of pictures. Default condition being set to 300 pixels.
- dispersion: dispersion of scores of object in loadplot.it is decreased overdispersion or underdispersion. Default condition being set to 3, it means, $\text{mean} \pm 3 * \text{standard deviation}$.
- point.size.loadplot: it is point size of loadplot. Default condition being set to 1.
- point.alpha.loadplot: it is point alpha(transparency) of loadplot. Default condition being set to 0.1,
- language: choose a English or Spanish like language. Default condition being set English.
- legend.position: Options to choose are none, left, right, bottom, and top. Default condition being set to right. it means legend position is to right.
- legend.group: Options to choose are TRUE,FALSE,T,F,1 and 0. Default condition being set to "1" mean it shows legend.

R code

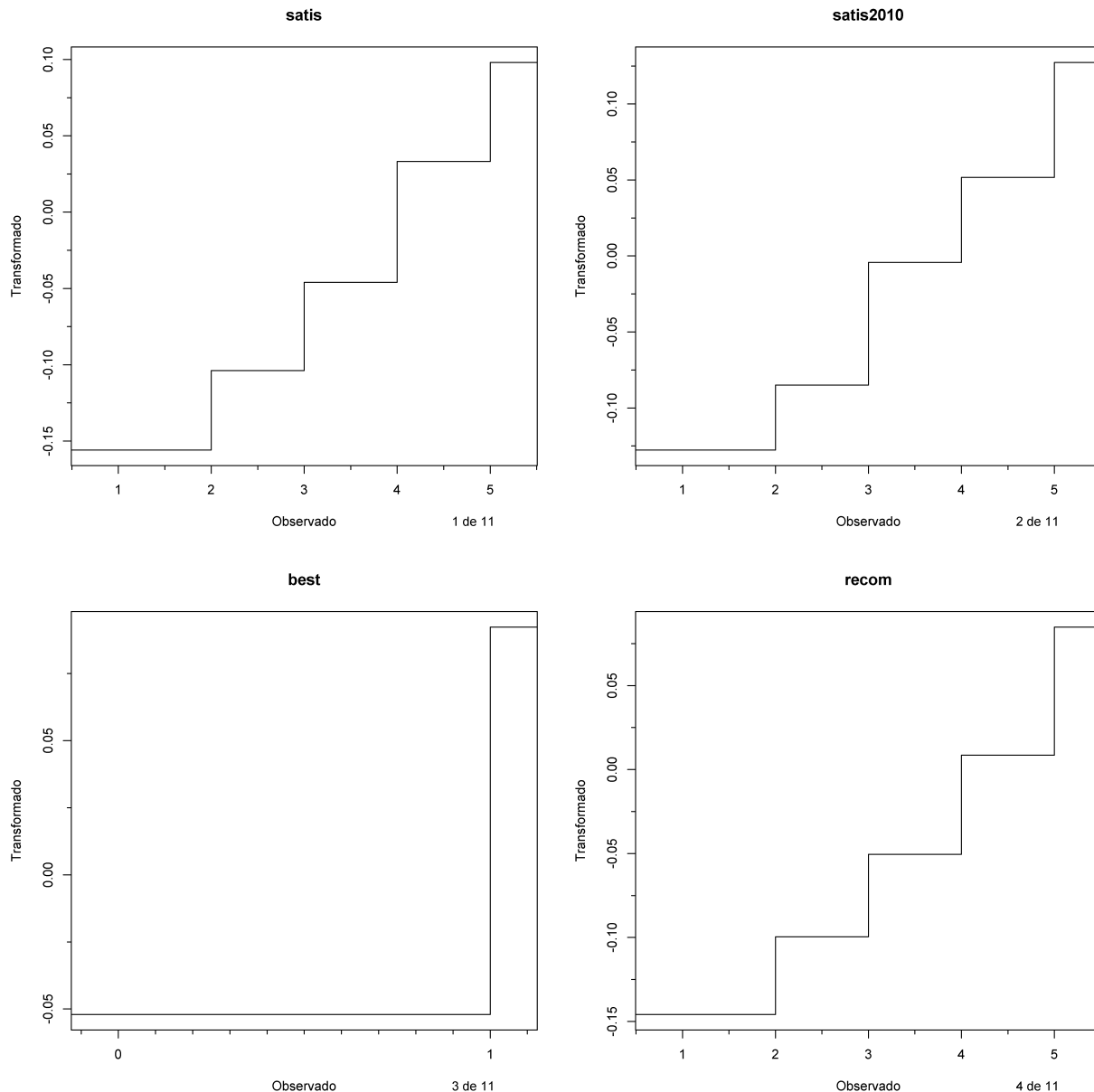
Finally, it were showed a picture which generated by "g.princals". If the label names are lengthy, it's advisable to shorten them into acronyms.

```
#####  
setwd("~/file")  
source("https://github.com/jasb3110/g.princals/blob/f286b26f79da57600c3e7f207a6f653f24028a76/g.princals  
  
library("Gifi")  
# ordinal PCA  
fitord <- princals(ABC,ndim = 2)## ordinal PCA  
g.princals(fitord,save=0,show=1,dispersion =3,legend.group = 0)#show plots  
g.princals(fitord,save=0,show=1,dispersion =3,colour.group = c(rep("A",5),rep("B",6)),legend.group = 1,
```

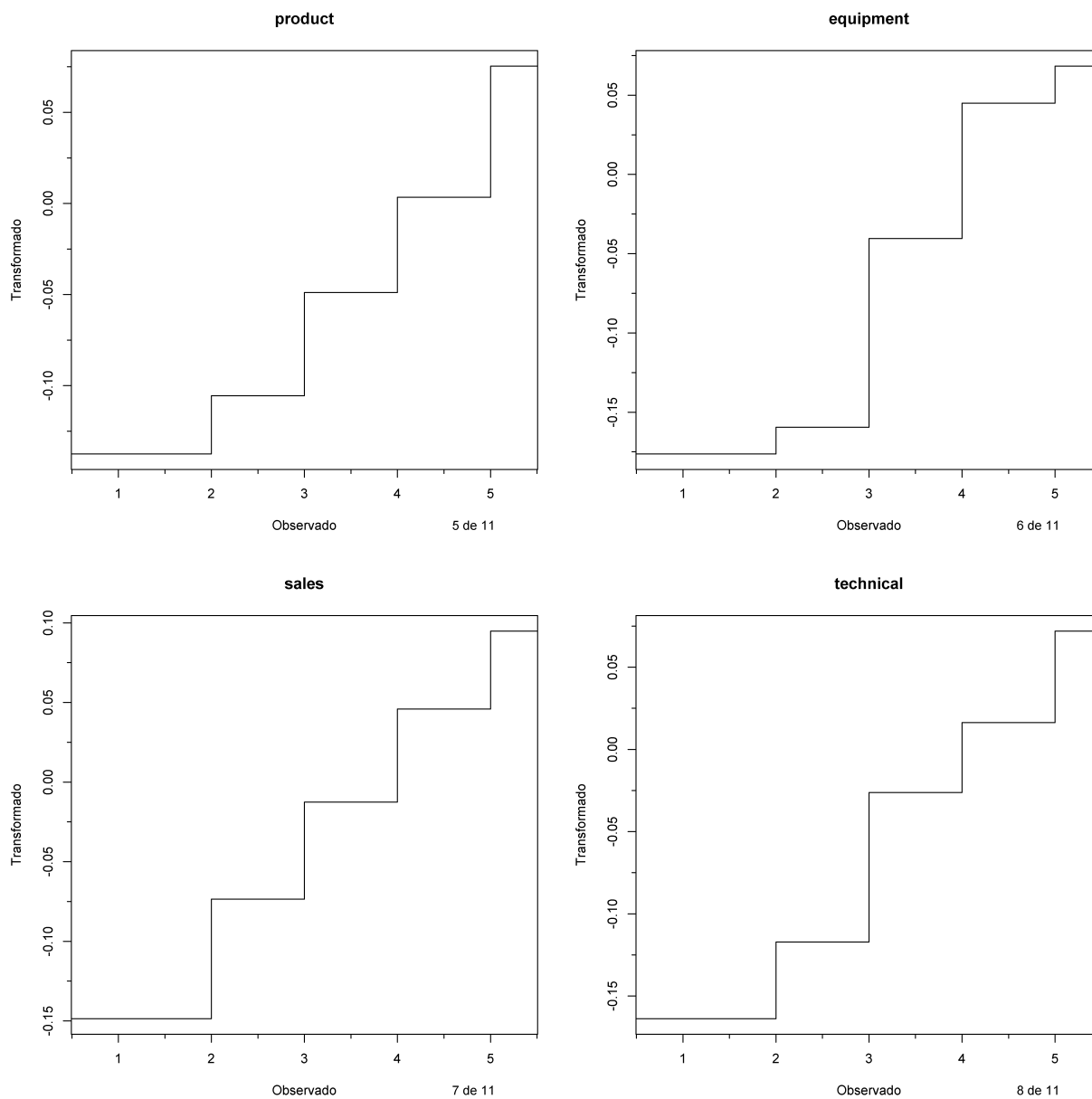
```
g.princals(fitord,save=1,show=1,dispersion =3,legend.group = 0)#save plots in PNG format
g.princals(fitord,save=1,show=0,dispersion =3,colour.group = c(rep("A",5),rep("B",6)),legend.group = 1,
#####
```

Output

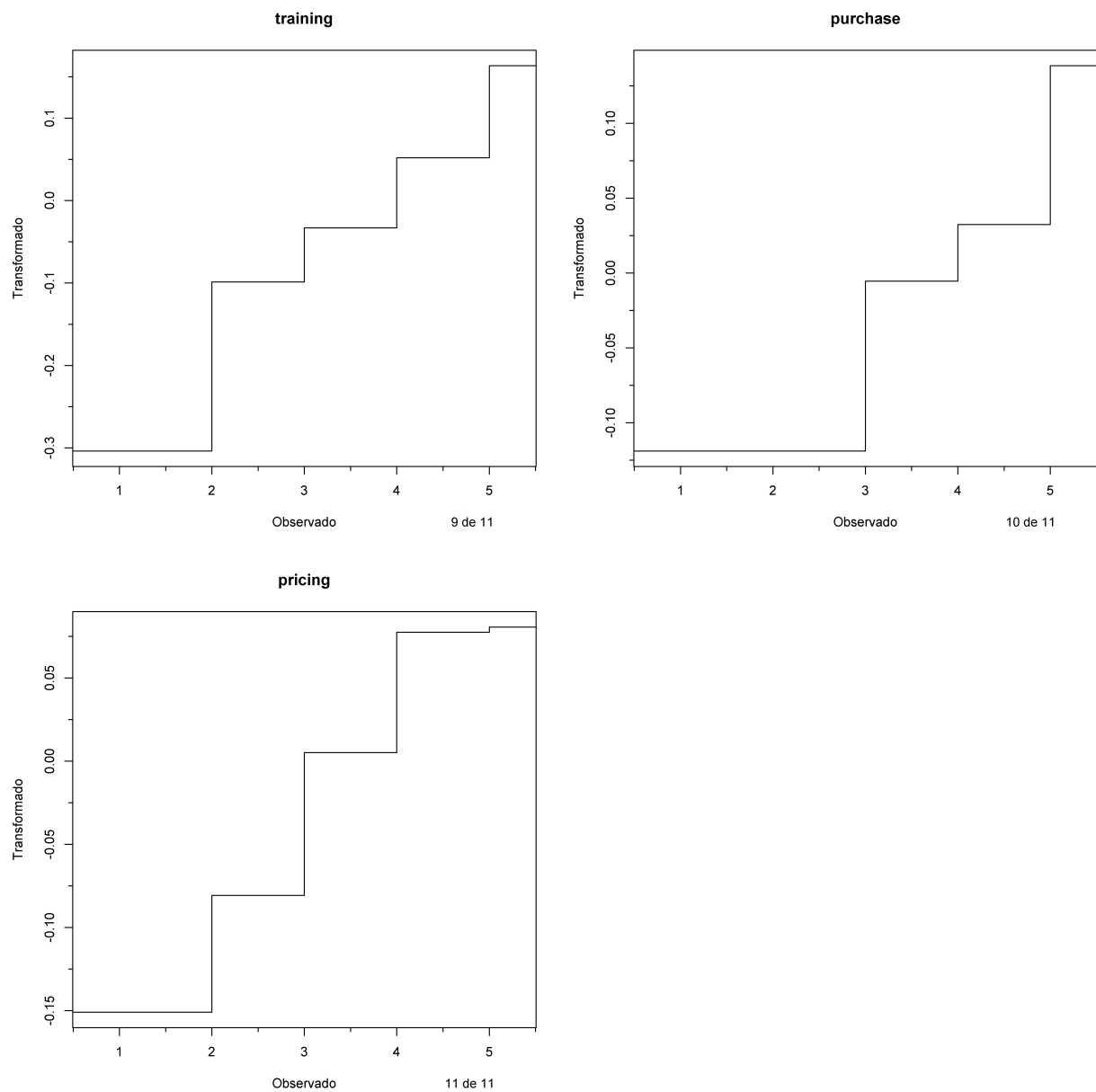
In this section, an R script and corresponding plots created using the g.princals function are presented in Spanish, and group of variables.



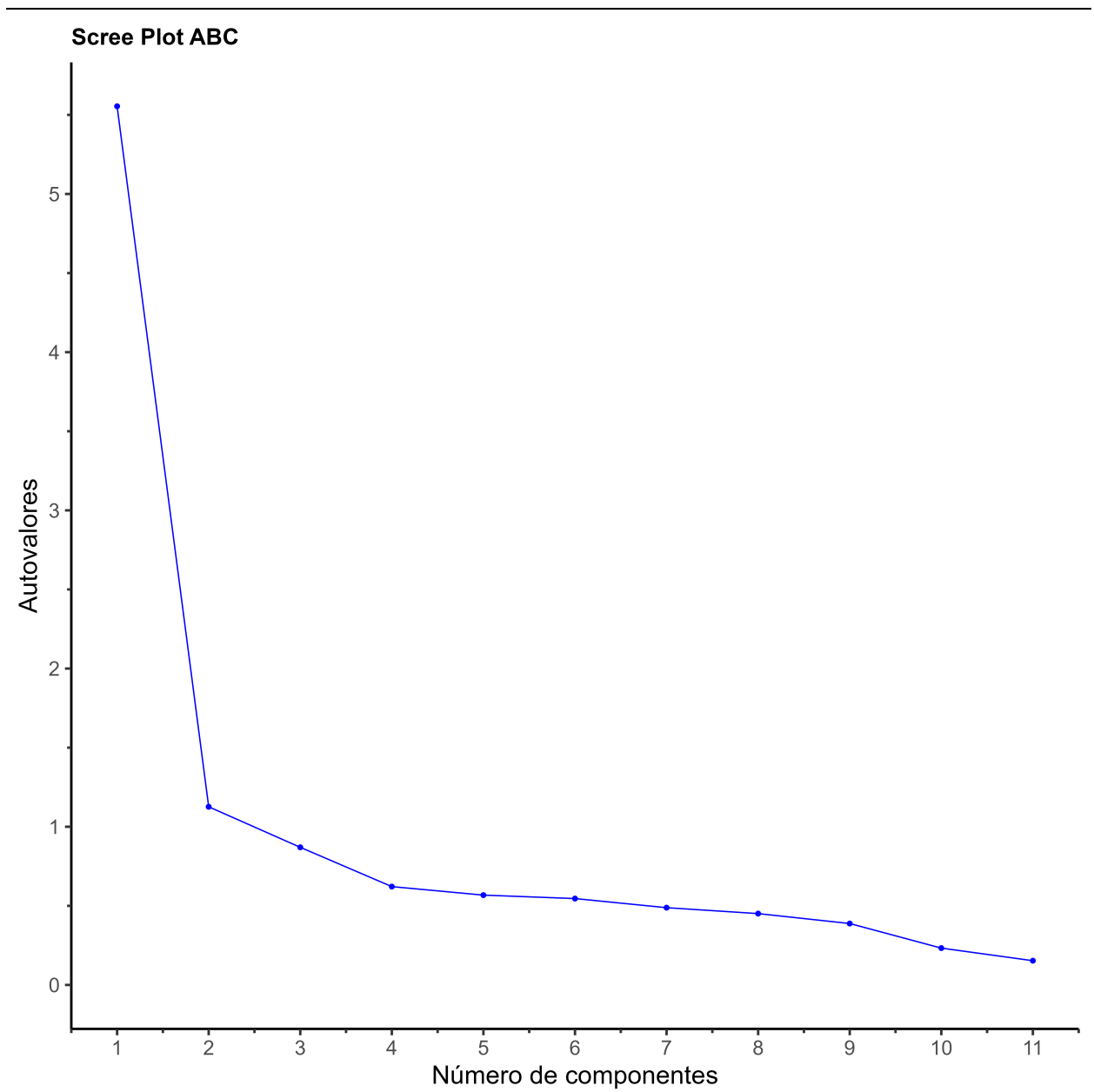
Picture. Transplots of ABC dataset, just 1 to 4 variables



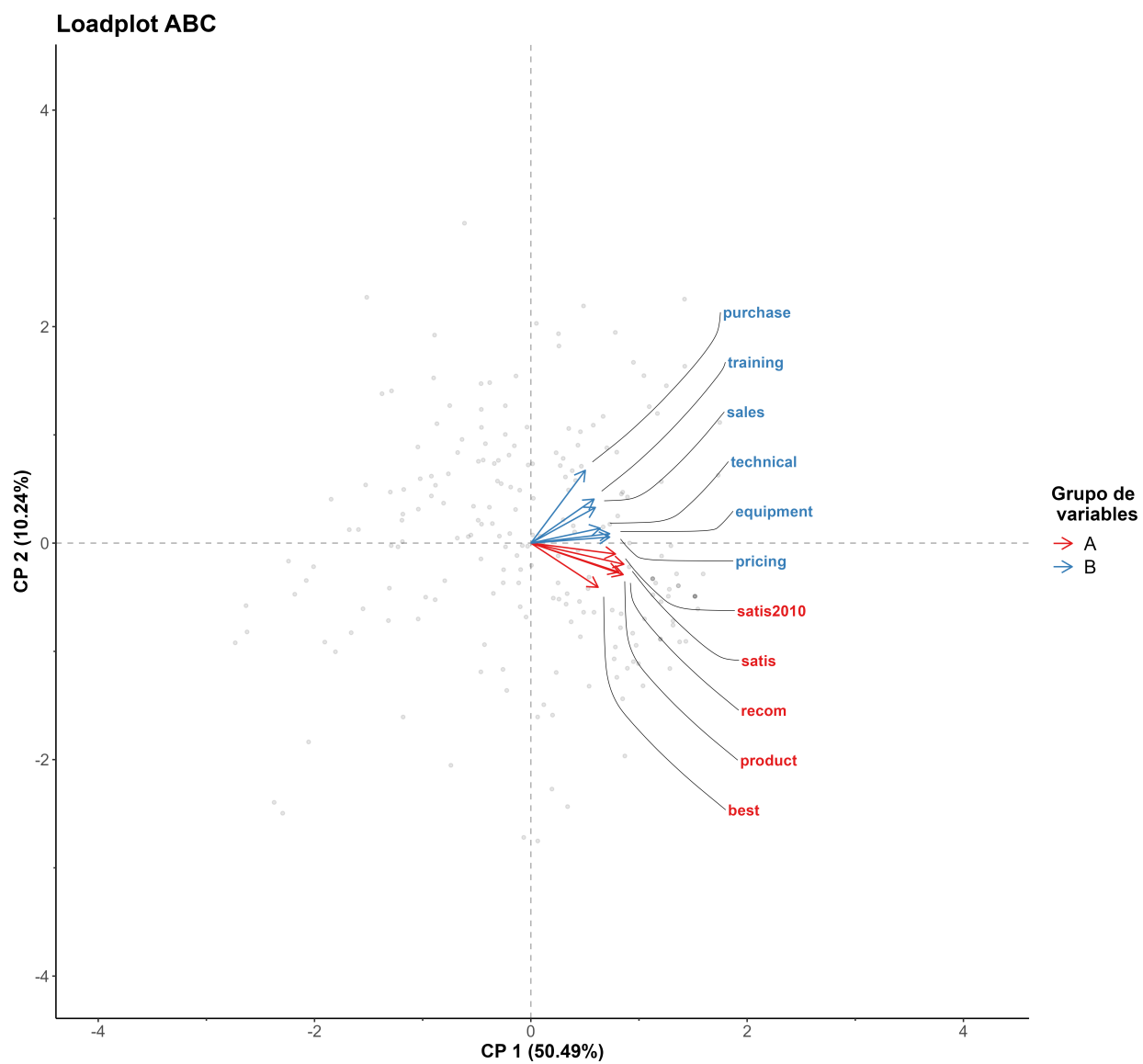
Picture. Transplots of ABC dataset, just 5 to 8 variables



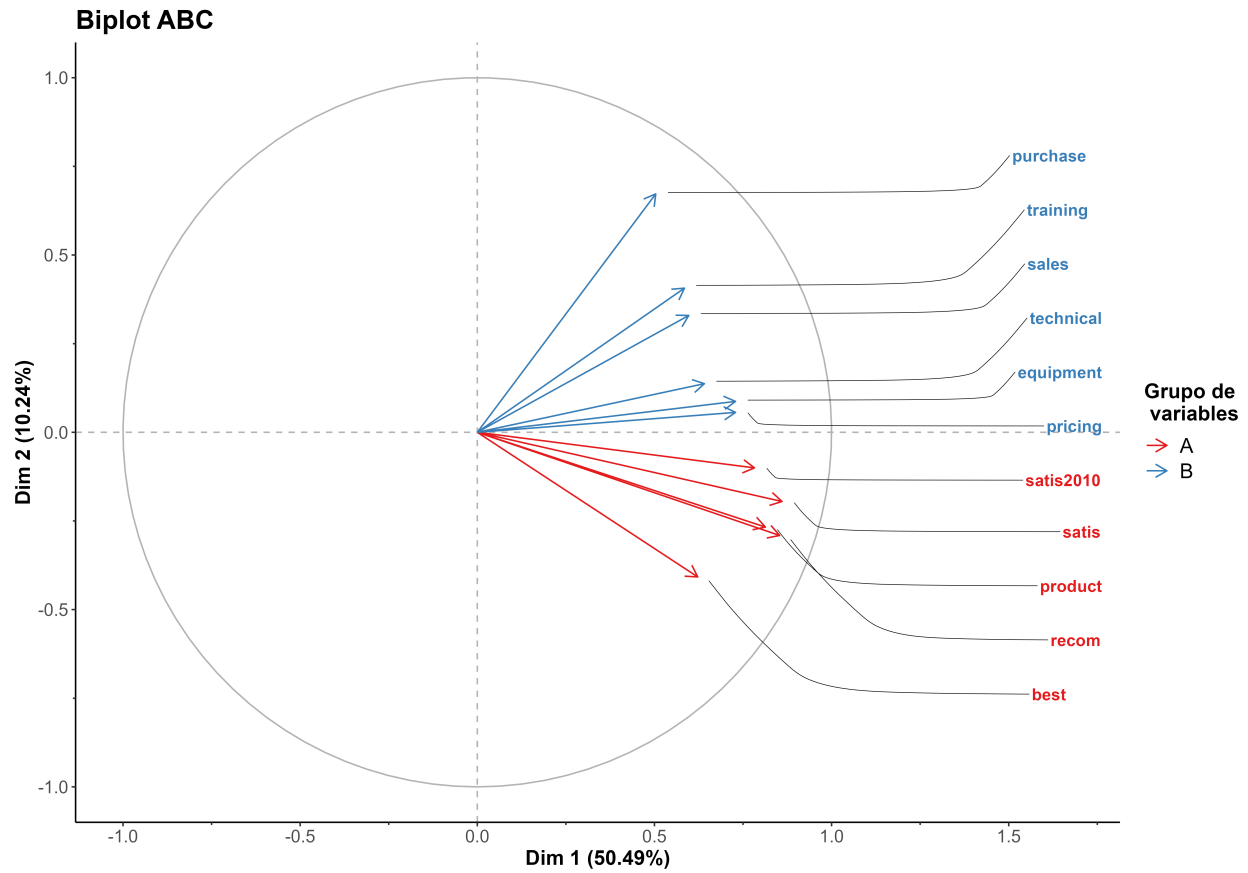
Picture. Transplots of ABC dataset, just 9 to 11 variables



Picture. Screeplot of ABC dataset



Picture. Loadplot of ABC dataset



Picture. Biplot of ABC dataset

Reference

- <https://rdr.io/rforge/Gifi/src/R/plot.princals.R>
- <https://github.com/jasb3110/g.princals/blob/0ed7b04adcb1039de5f9cafca0c6315a36a37e09/g.princals.R>