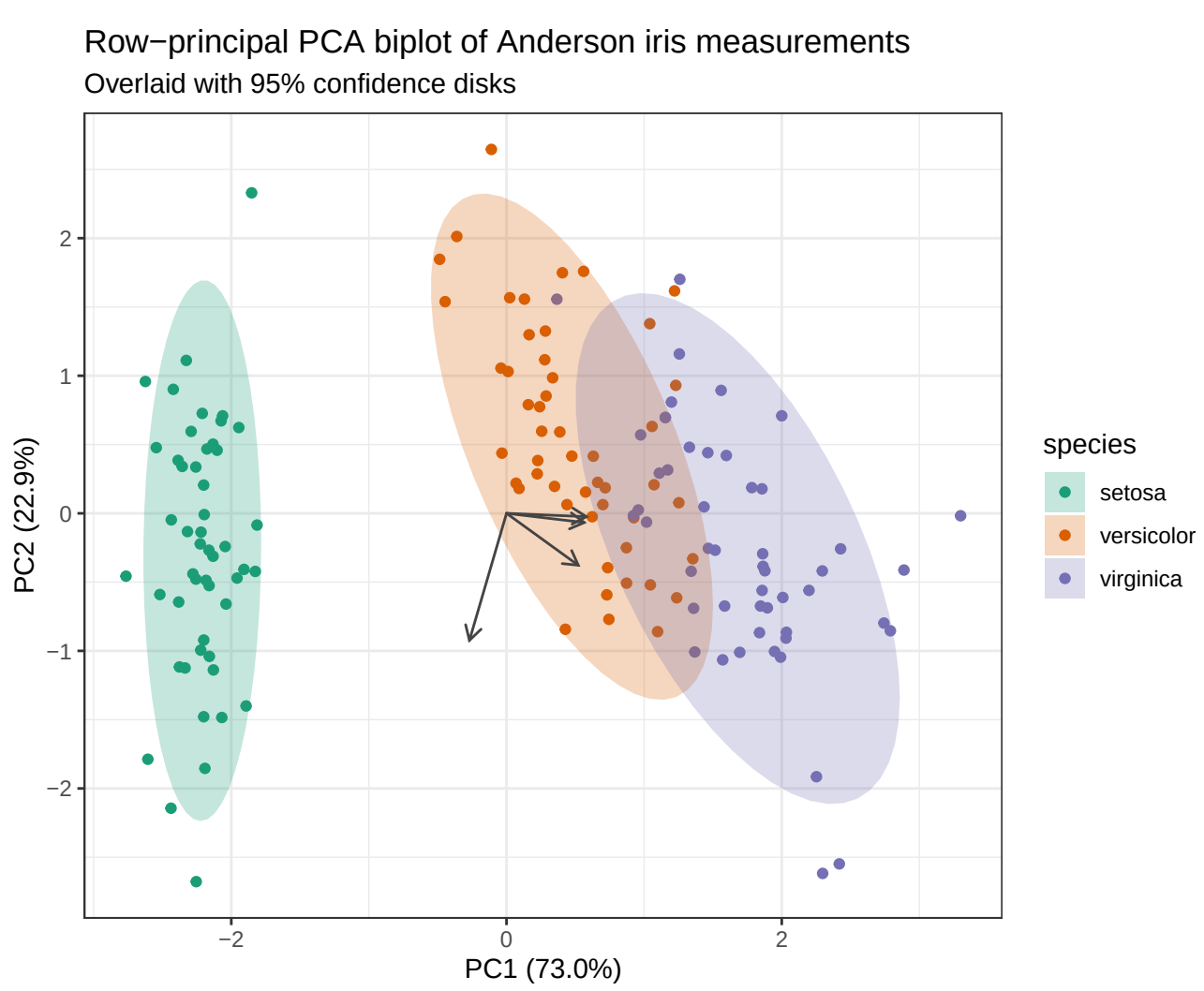
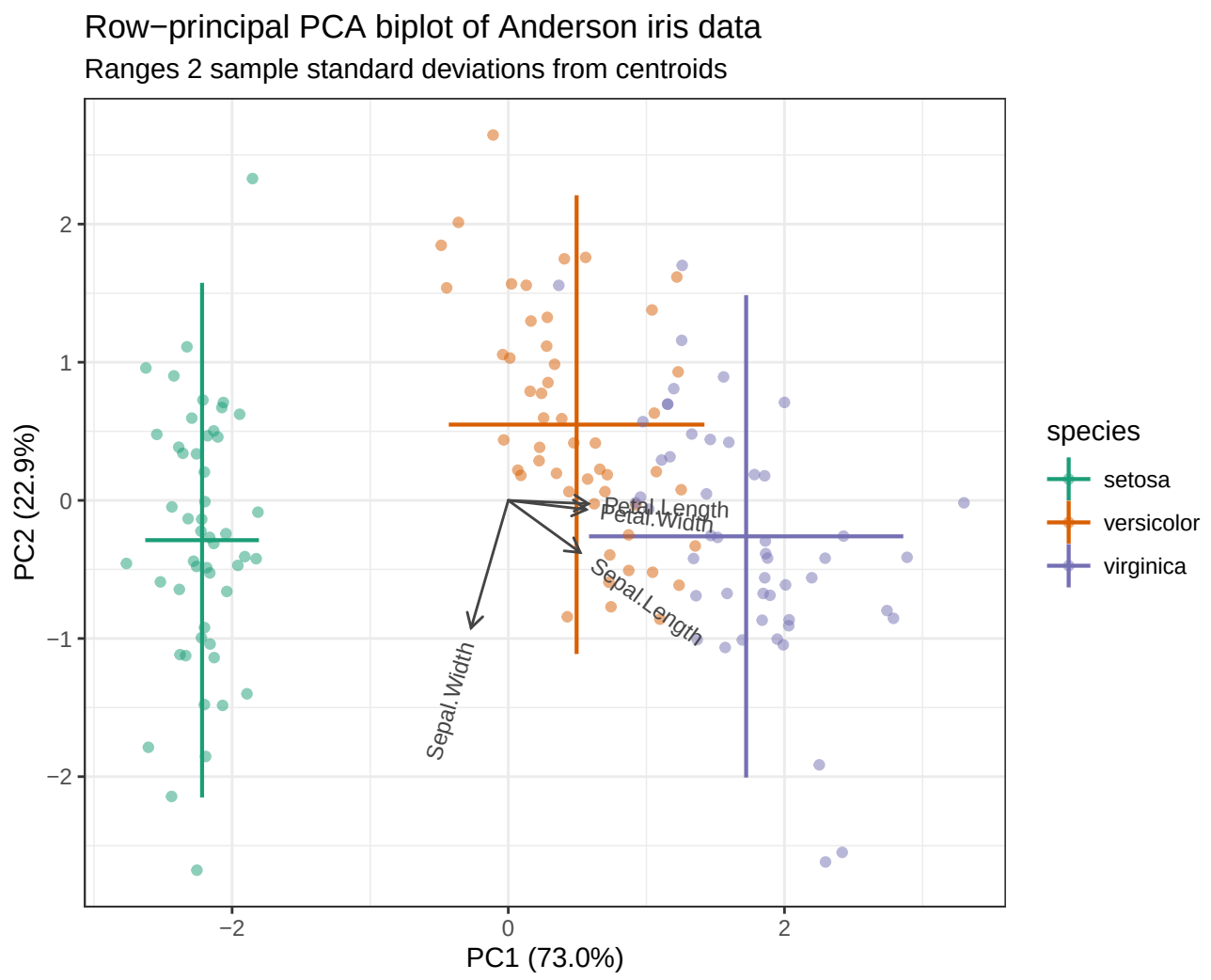
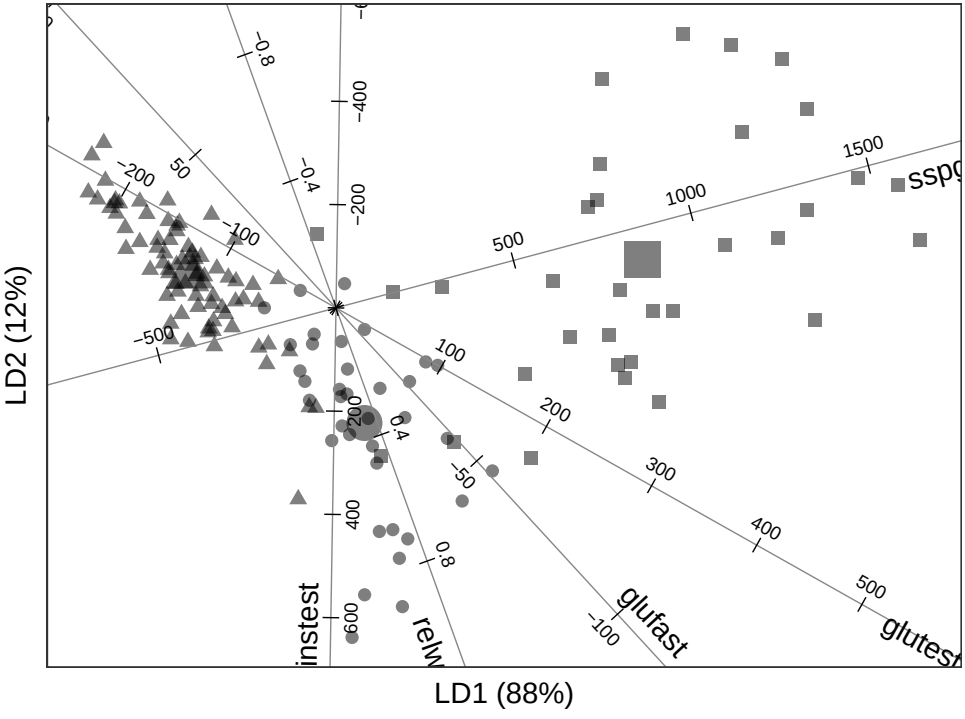

Row−principal PCA biplot of Anderson iris measurements
Overlaid with 95% confidence disks
PC2 (22.9%)
PC1 (73.0%)
2
1
0
−1
−2
−2
0
2
species
setosa
versicolor
virginica
help("biplot−stats")


Row−principal PCA biplot of Anderson iris data
Ranges 2 sample standard deviations from centroids
PC2 (22.9%)
PC1 (73.0%)
2
1
0
−1
−2
−2
0
2
Petal.Length
Petal.Width
Sepal.Length
Sepal.Width
species
setosa
versicolor
virginica
help("draw−key")

help("geom_axis")

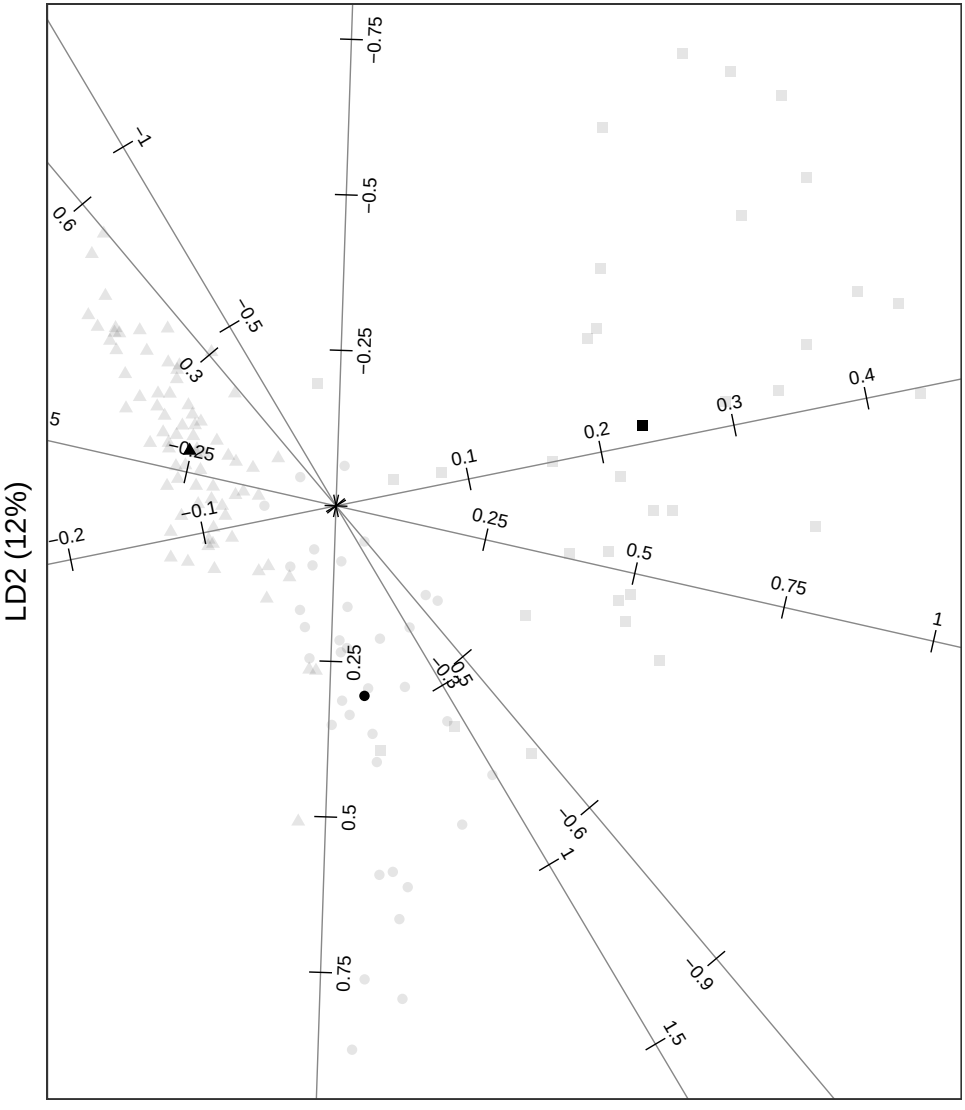
LDA of Reaven & Miller diabetes groups

Row−standard biplot of standardized LDA



LDA of Reaven & Miller diabetes groups

Symmetric biplot of contribution LDA



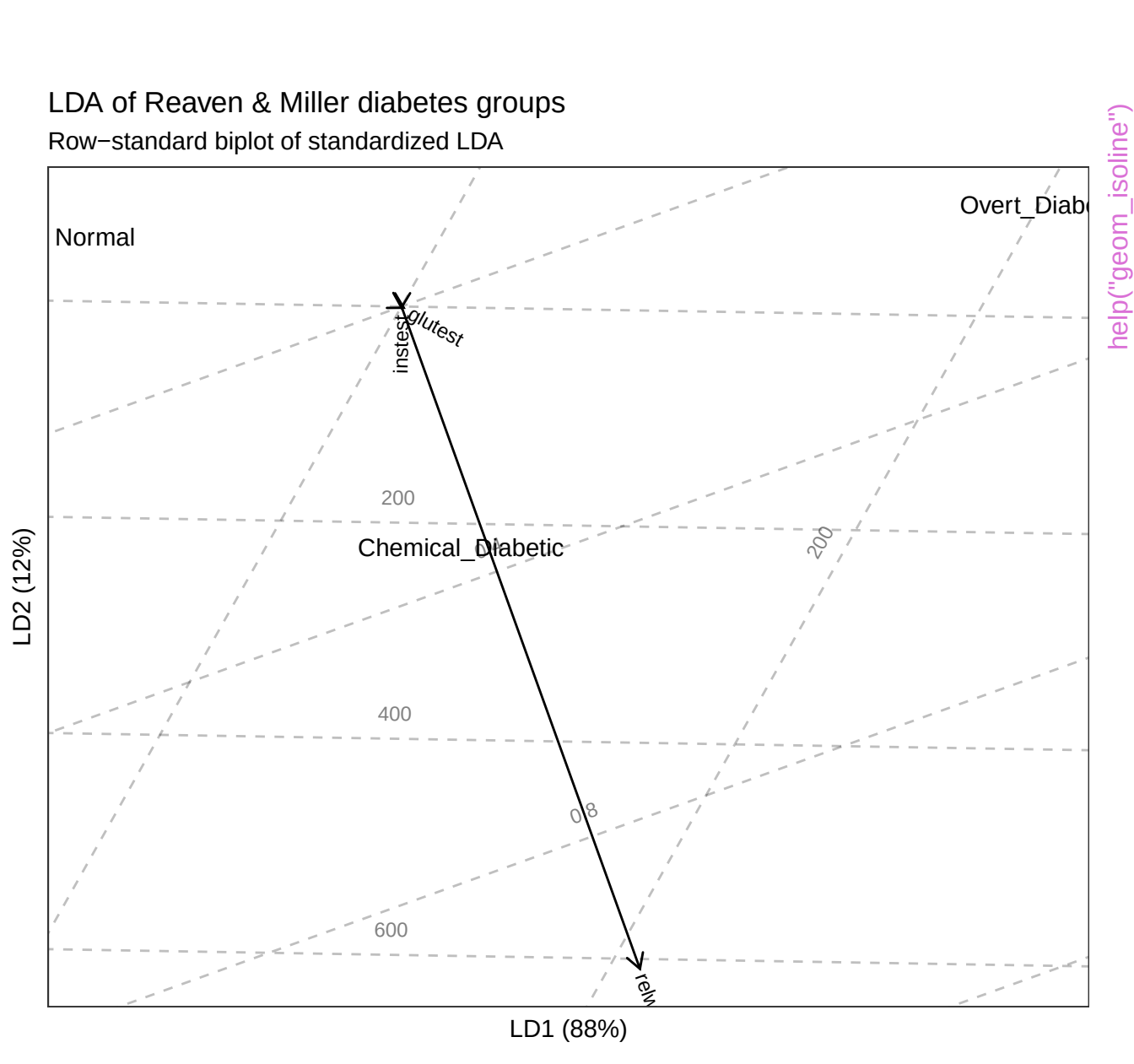
grouping

- Chemical_Diabetic
- Normal
- Overt_Diabetic

discriminant

- case
- centroid

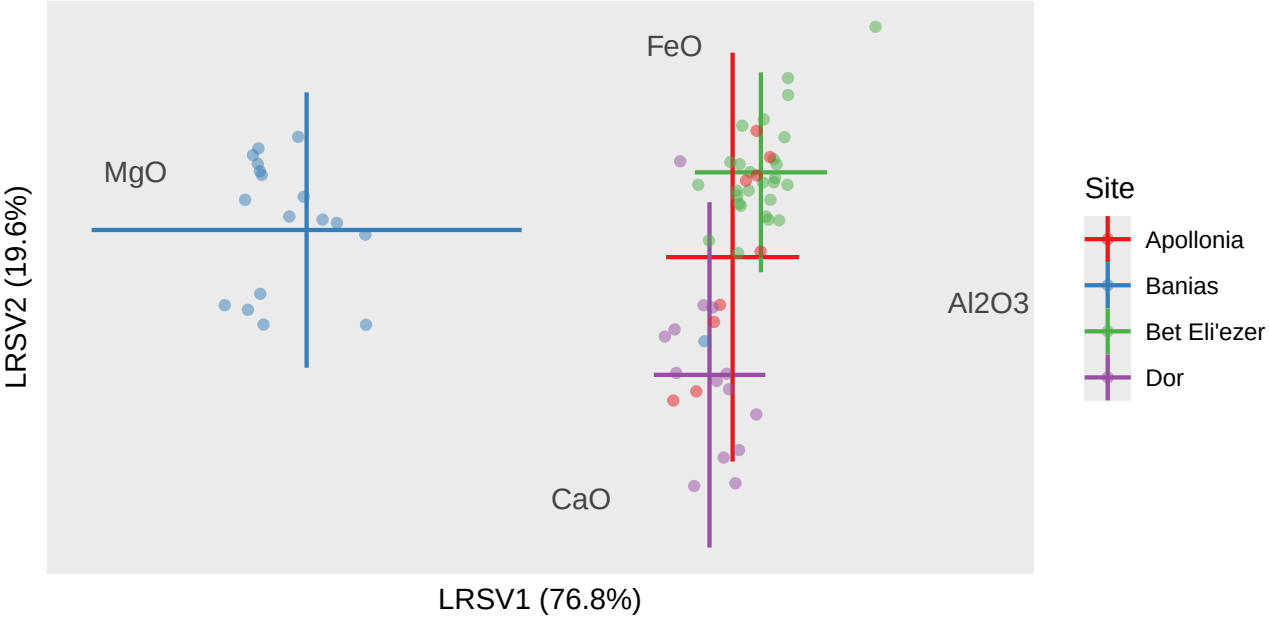
help("geom_axis")

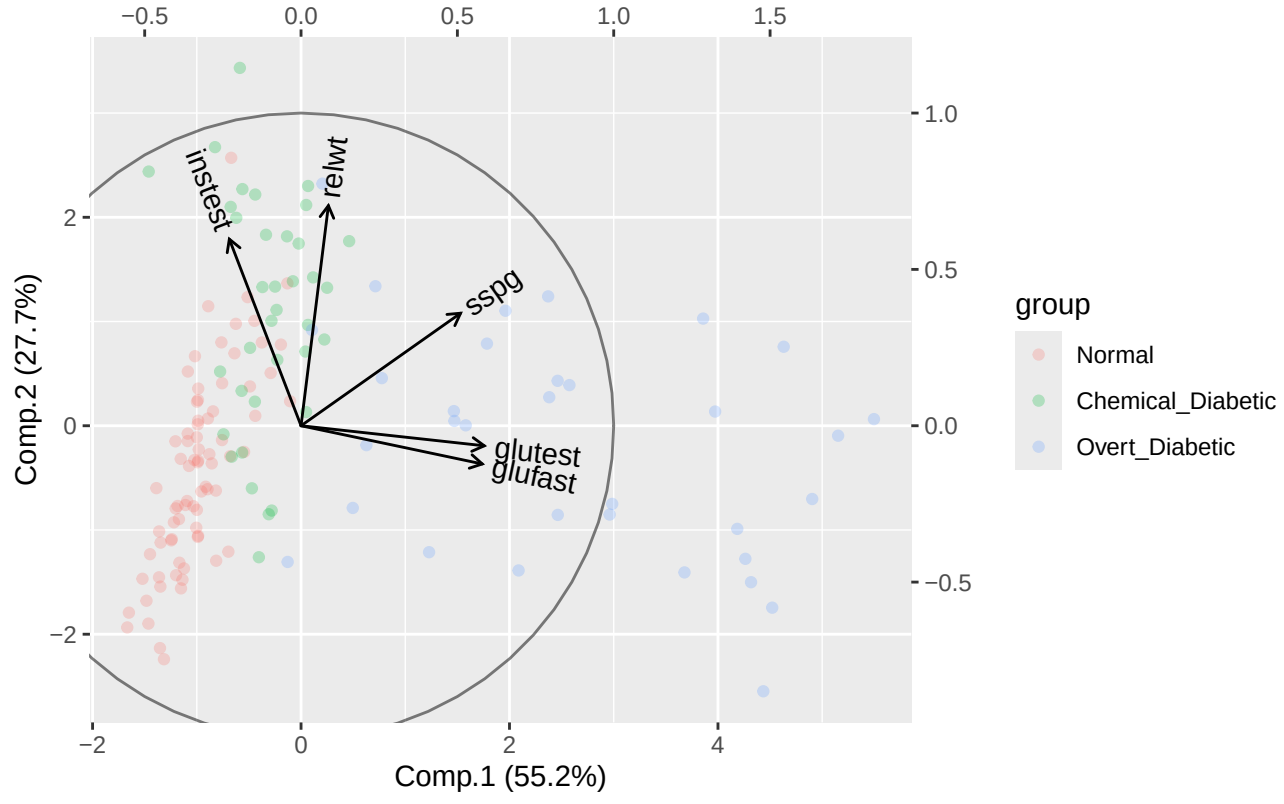

LDA of Reaven & Miller diabetes groups
Row−standard biplot of standardized LDA
Normal
Overt_Diab
Chemical_Diabetic
instest
glutest
200
400
600
200
LD2 (12%)
LD1 (88%)
help("geom_isoline")

help("geom_lineranges")

Row−principal LRA biplot of Freestone glass measurements

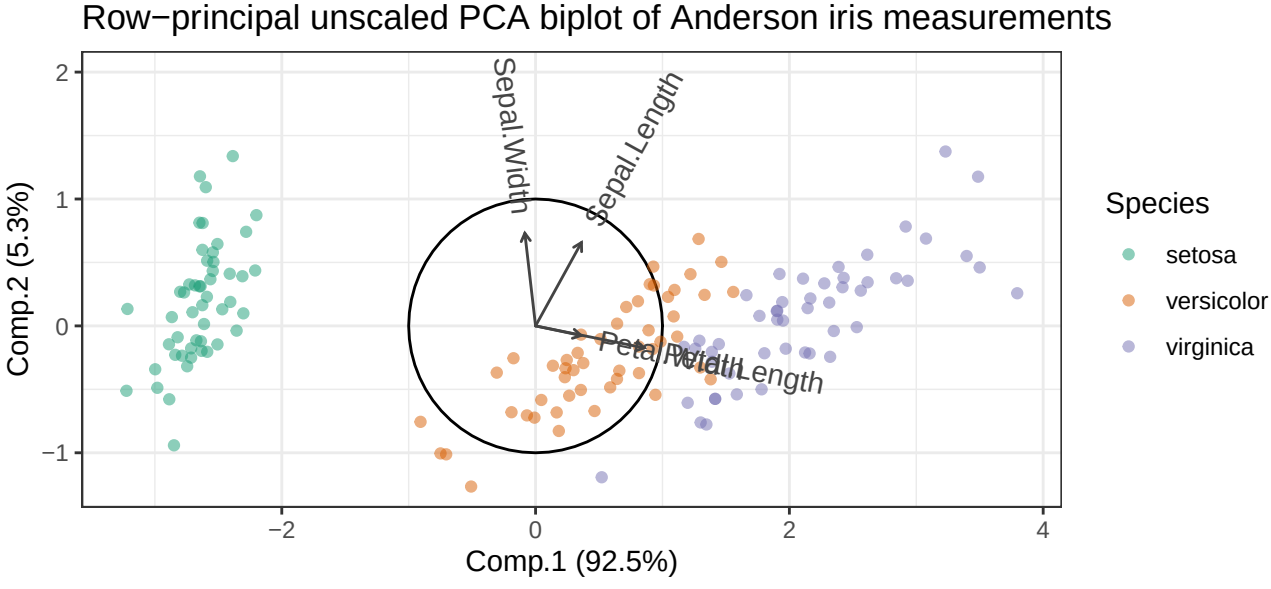
Ranges 2 sample standard deviations from centroids

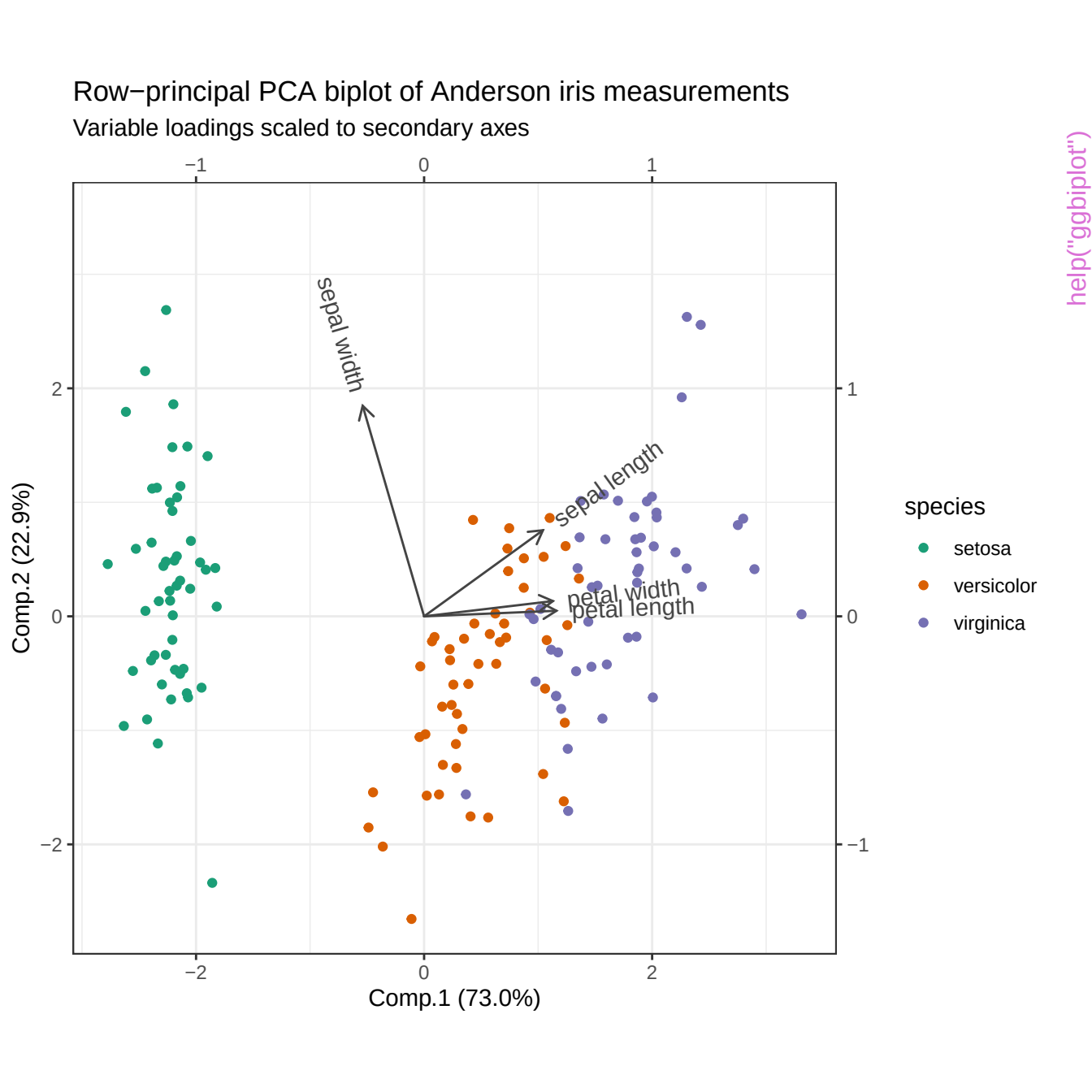


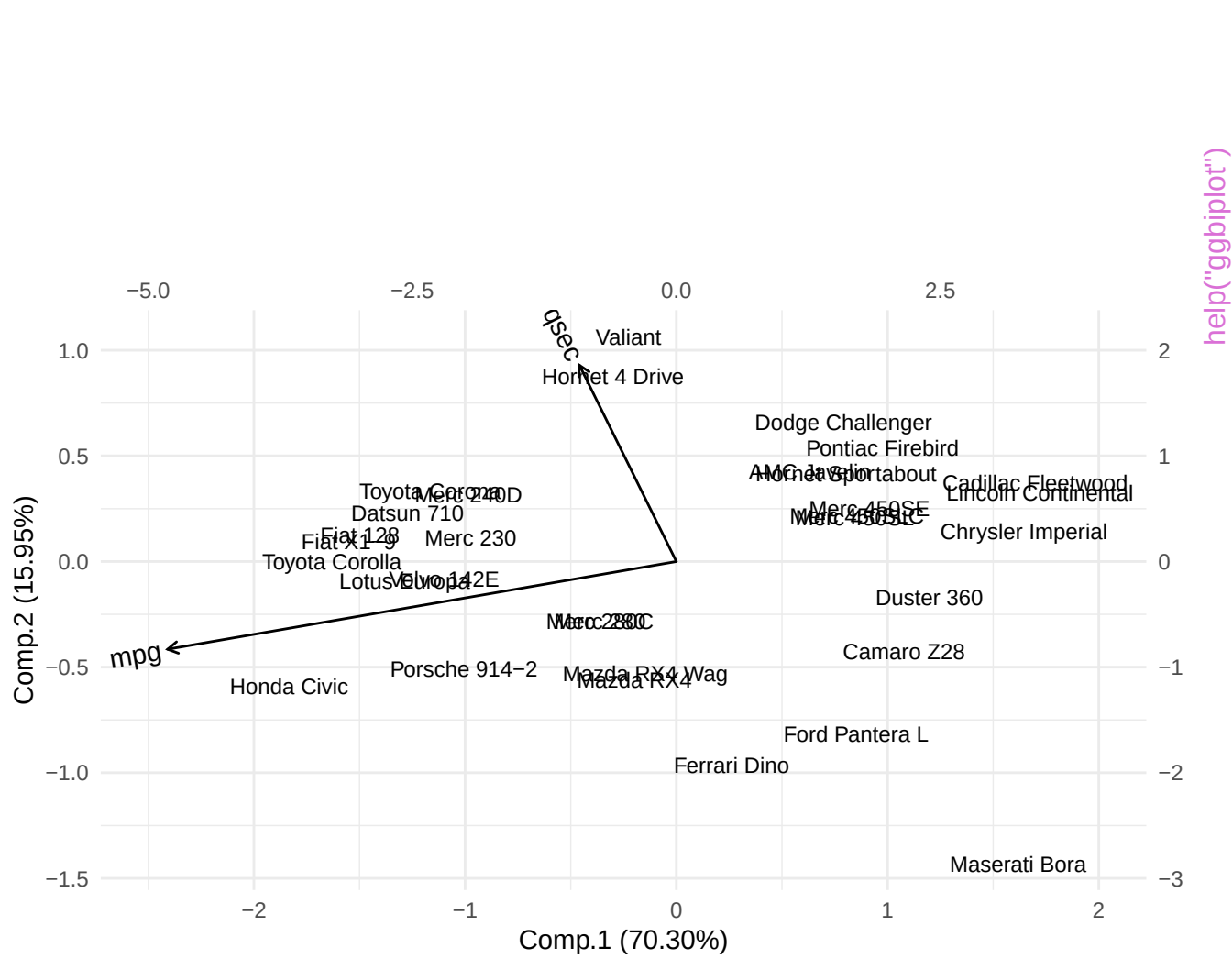


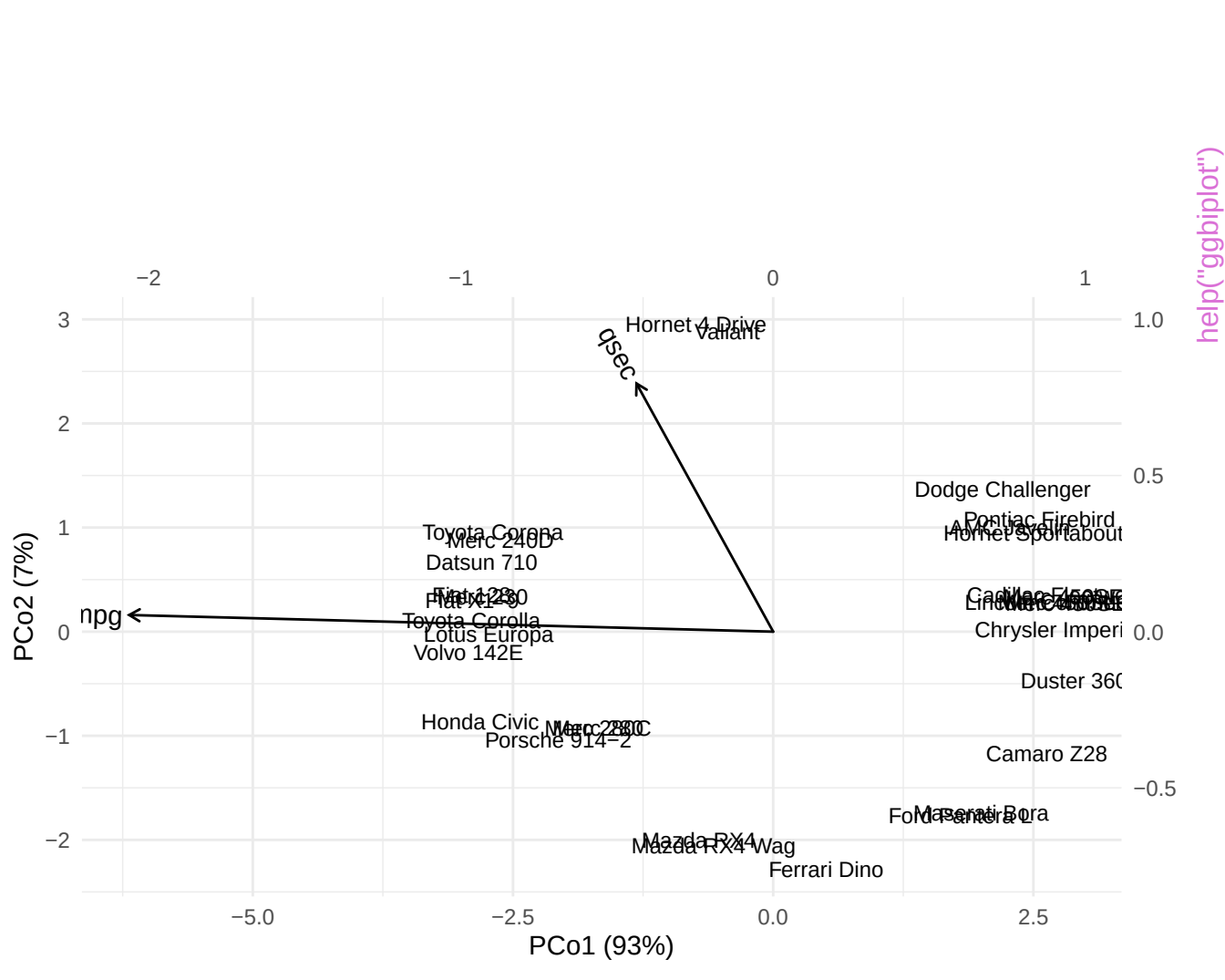
help("geom_unit_circle")

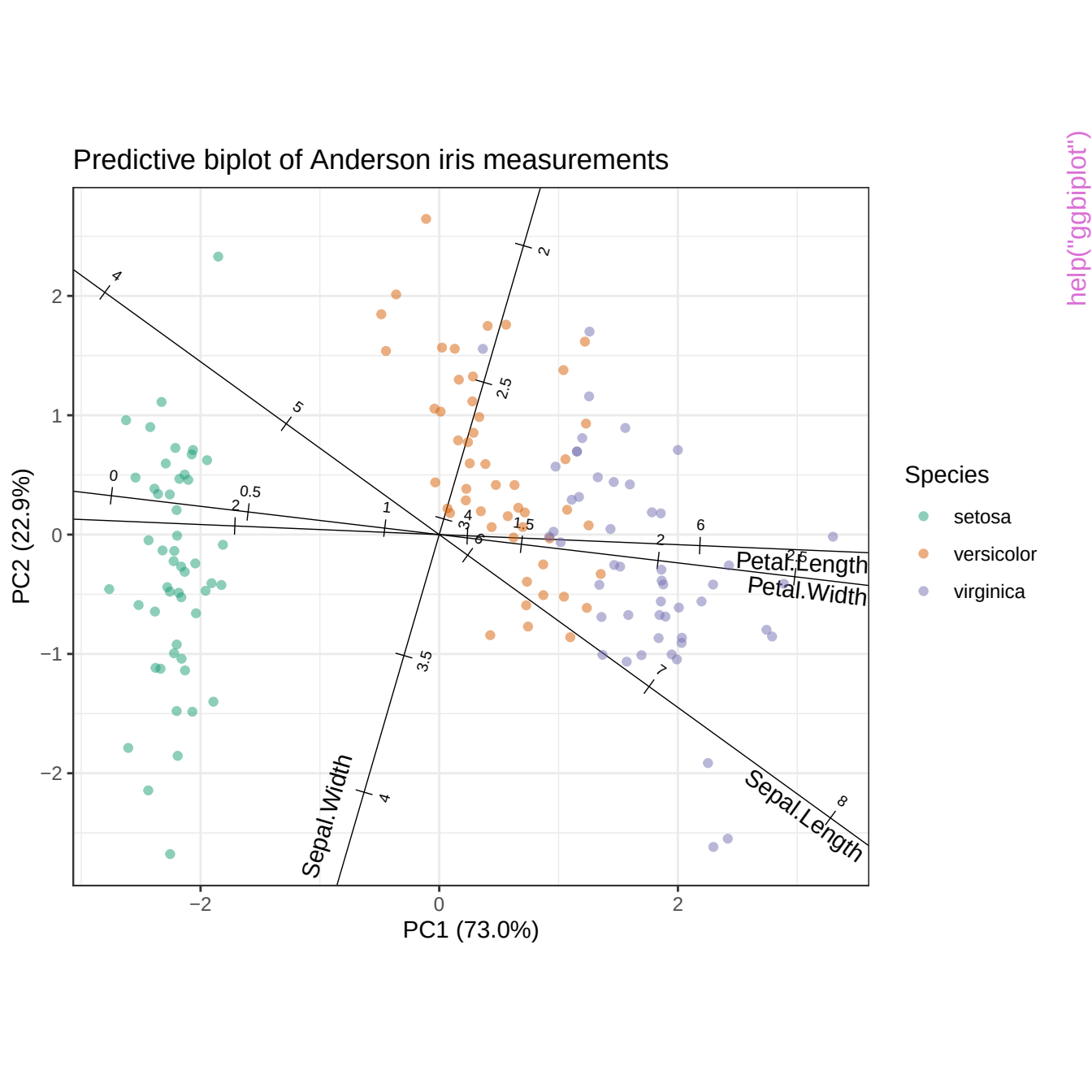
help("geom_vector")

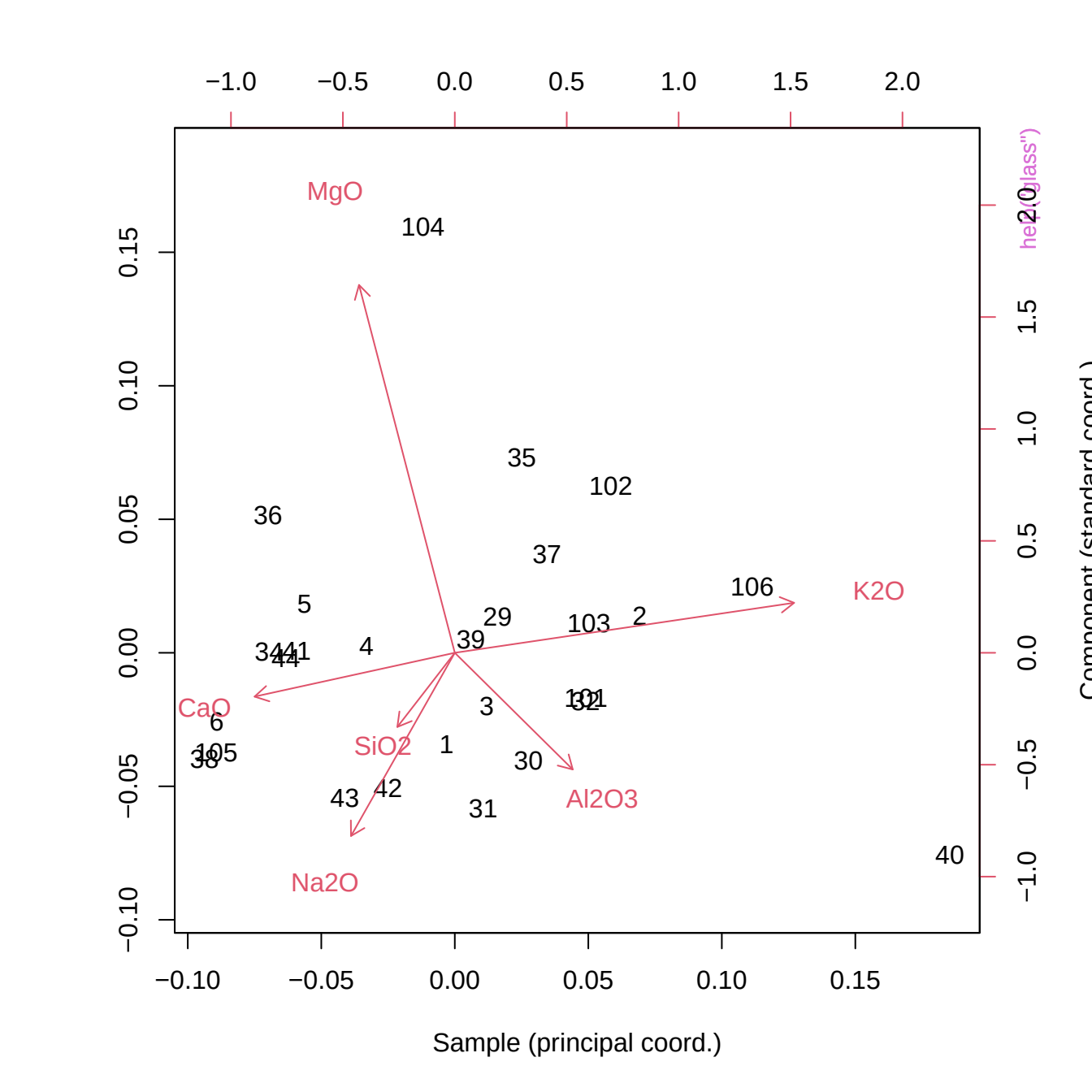



Row−principal PCA biplot of Anderson iris measurements
Variable loadings scaled to secondary axes
help("ggbiplot")
sepal width
sepal length
petal width
petal length
species
setosa
versicolor
virginica
Comp.1 (73.0%)
Comp.2 (22.9%)
−1
0
1
2
−2


help("ggbiplot")
qsec
mpg
Valiant
Hornet 4 Drive
Dodge Challenger
Pontiac Firebird
AMC Javelin
Hornet Sportabout
Cadillac Fleetwood
Lincoln Continental
Chrysler Imperial
Merc 450SE
Merc 450SL
Merc 450SLC
Duster 360
Camaro Z28
Ford Pantera L
Ferrari Dino
Maserati Bora
Toyota Corona
Merc 240D
Datsun 710
Fiat X1-9
Fiat 128
Merc 230
Toyota Corolla
Lotus Europa
Volvo 142E
Merc 280C
Merc 280
Porsche 914-2
Mazda RX4 Wag
Mazda RX4
Honda Civic
Comp.1 (70.30%)
Comp.2 (15.95%)
−5.0
−2.5
0.0
2.5
1.0
0.5
0.0
−0.5
−1.0
−1.5
2
1
0
−1
−2
−3
−2
−1
0
1
2

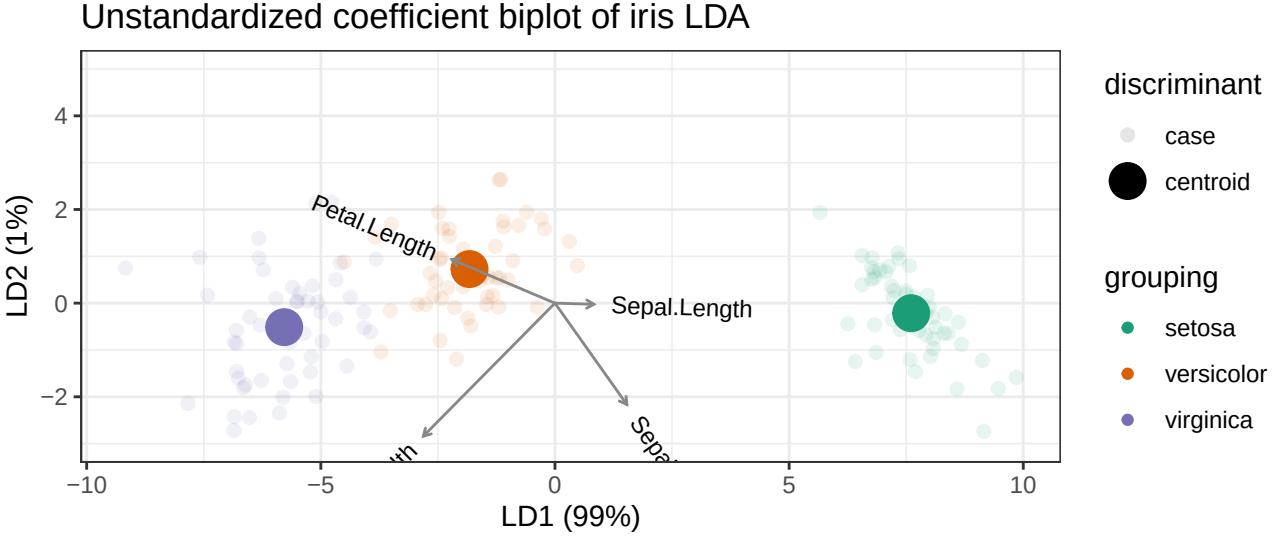

help("ggbiplot")
−2
−1
0
1
3
2
1
0
−1
−2
1.0
0.5
0.0
−0.5
qsec
Hornet 4 Drive
Valiant
npg
Toyota Corona
Merc 240D
Datsun 710
Toyota Corolla
Lotus Europa
Volvo 142E
Honda Civic
Porsche 914−2
Dodge Challenger
Pontiac Firebird
Chrysler Imperi
Duster 360
Camaro Z28
Ford Pantera L
Maserati Bora
Mazda RX4
Mazda RX4 Wag
Ferrari Dino
−5.0
−2.5
0.0
2.5
PCo2 (7%)
PCo1 (93%)

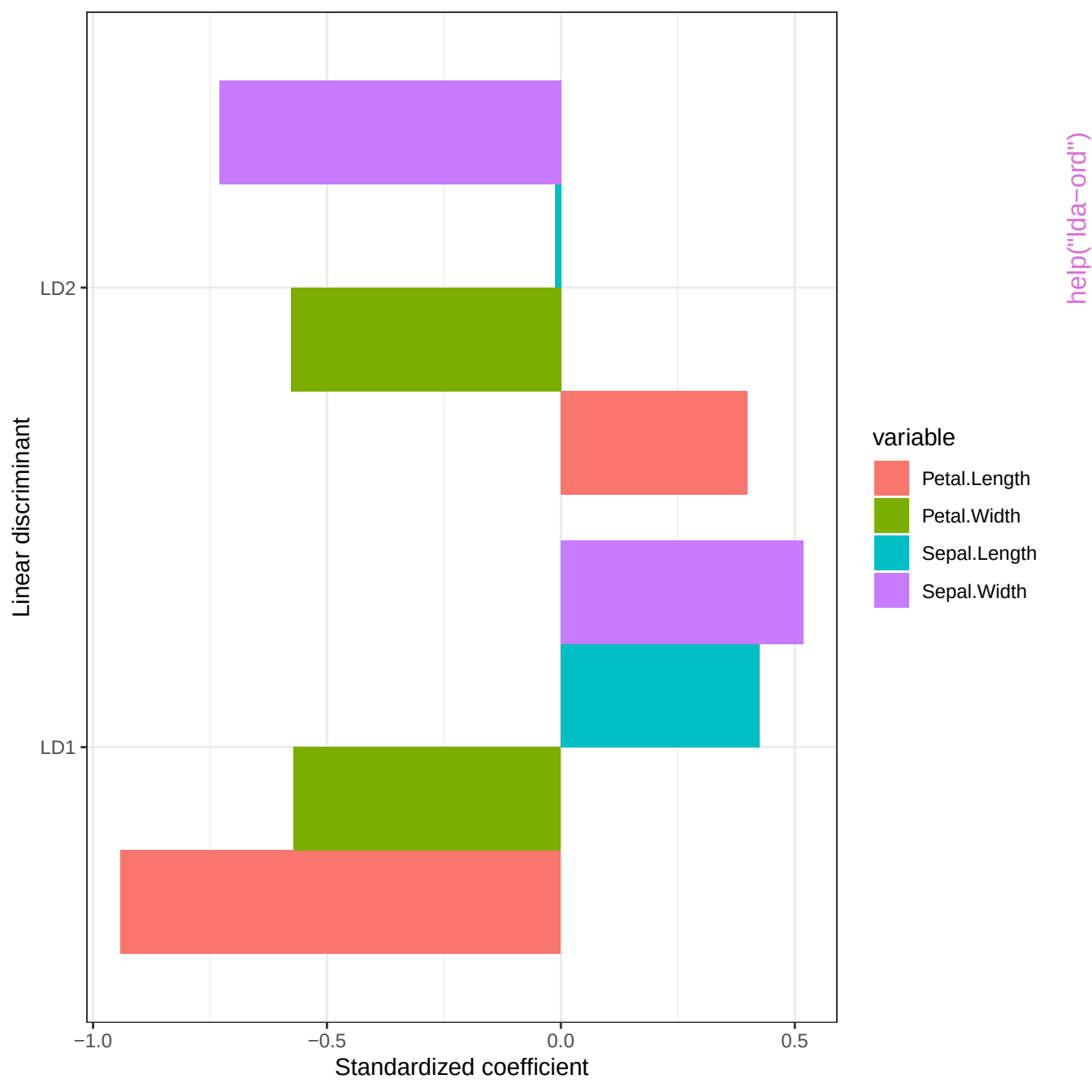

Predictive biplot of Anderson iris measurements
PC2 (22.9%)
PC1 (73.0%)
Petal.Length
Petal.Width
Sepal.Width
Sepal.Length
Species
setosa
versicolor
virginica
help("ggbiplot")



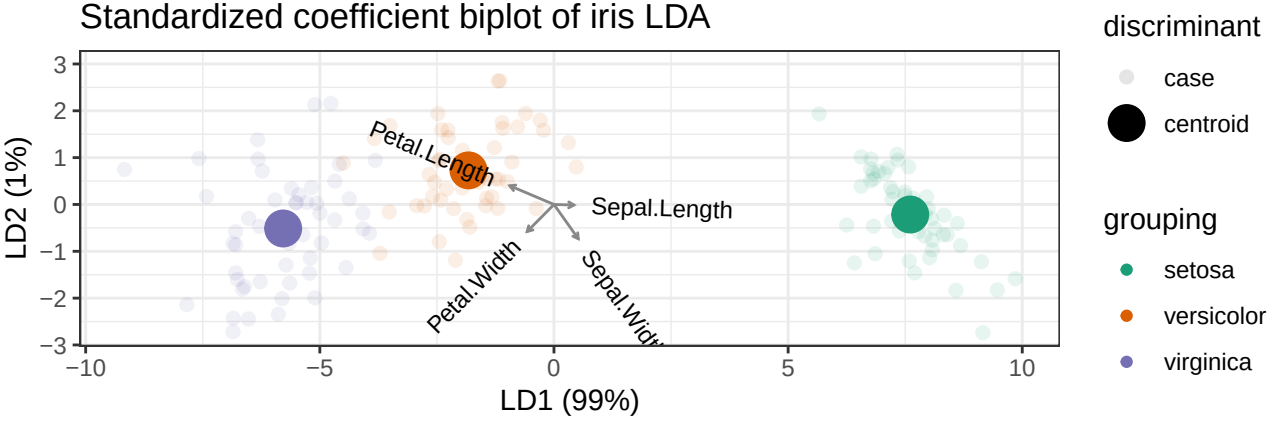
MgO
K2O
CaO
SiO2
Al2O3
Na2O
104
35
102
36
37
106
5
29
103
2
39
4
3
6
1
30
43
42
31
40
Sample (principal coord.)
Component (standard coord.)

help("lda-ord")

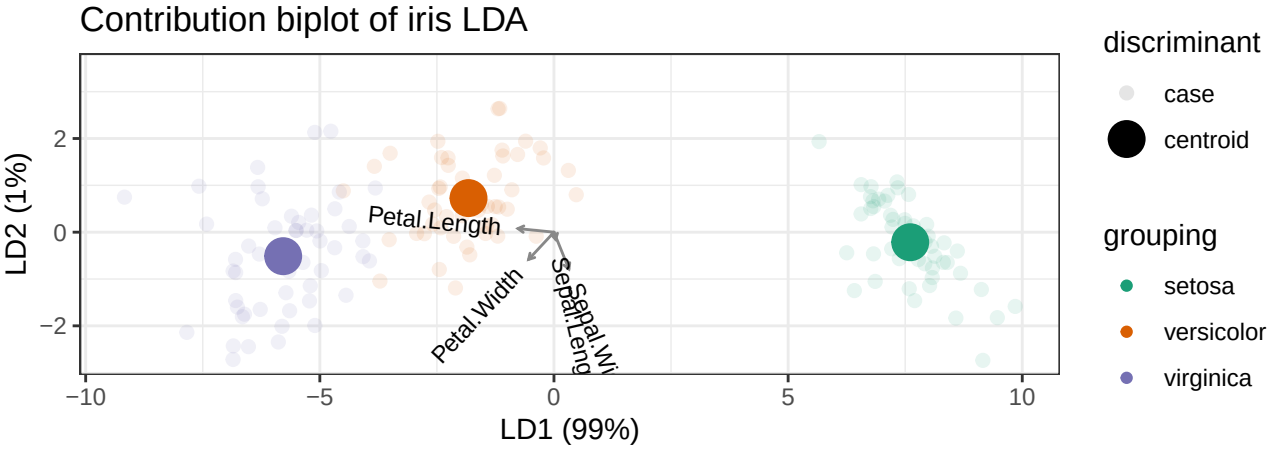

Unstandardized coefficient biplot of iris LDA
LD2 (1%)
LD1 (99%)
4
2
0
−2
−10
−5
0
5
10
Petal.Length
Sepal.Length
discriminant
case
centroid
grouping
setosa
versicolor
virginica


LD2
LD1
Linear discriminant
−1.0
−0.5
0.0
0.5
Standardized coefficient
variable
Petal.Length
Petal.Width
Sepal.Length
Sepal.Width
help("lda-ord")

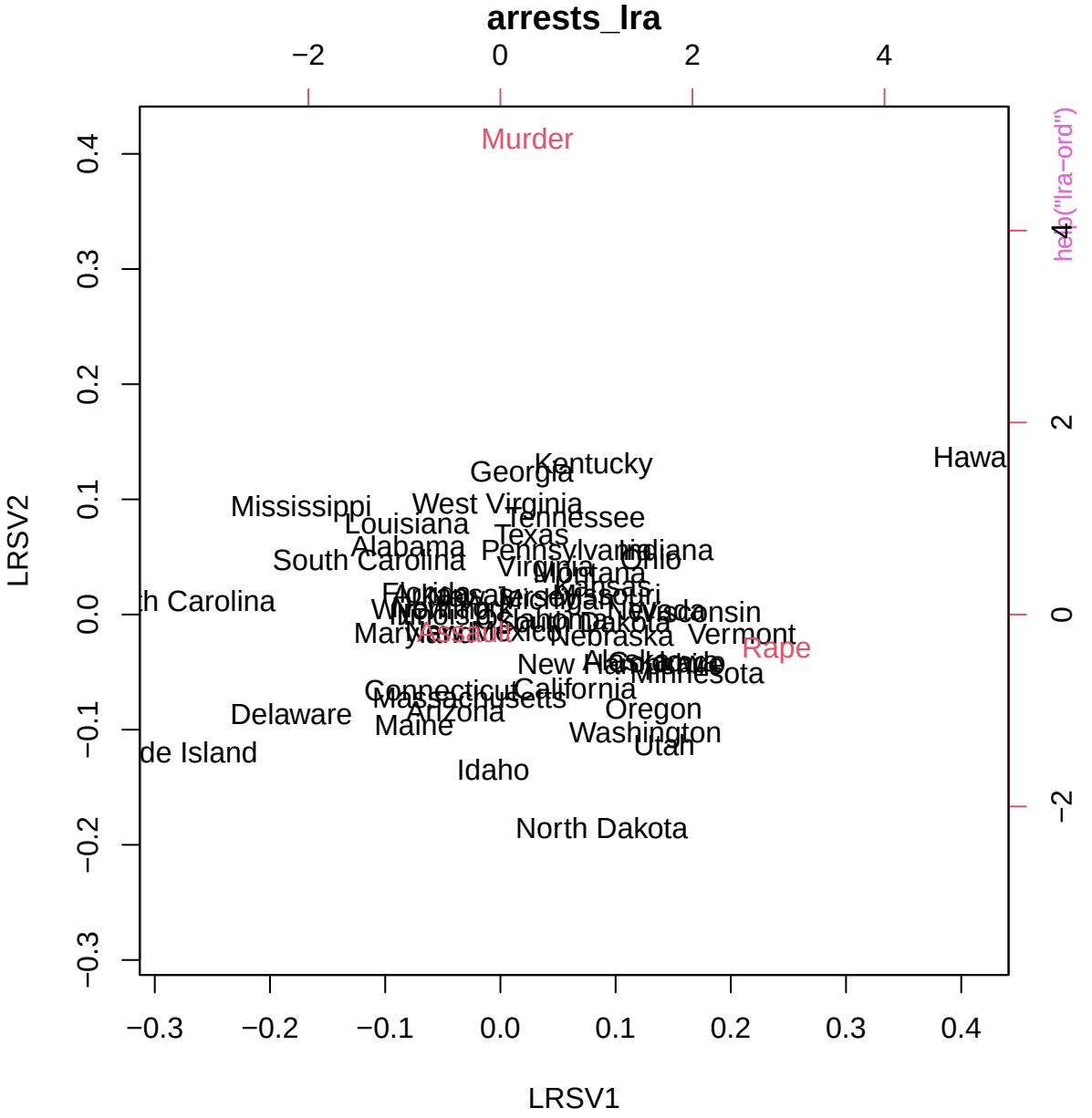
help("lda-ord")

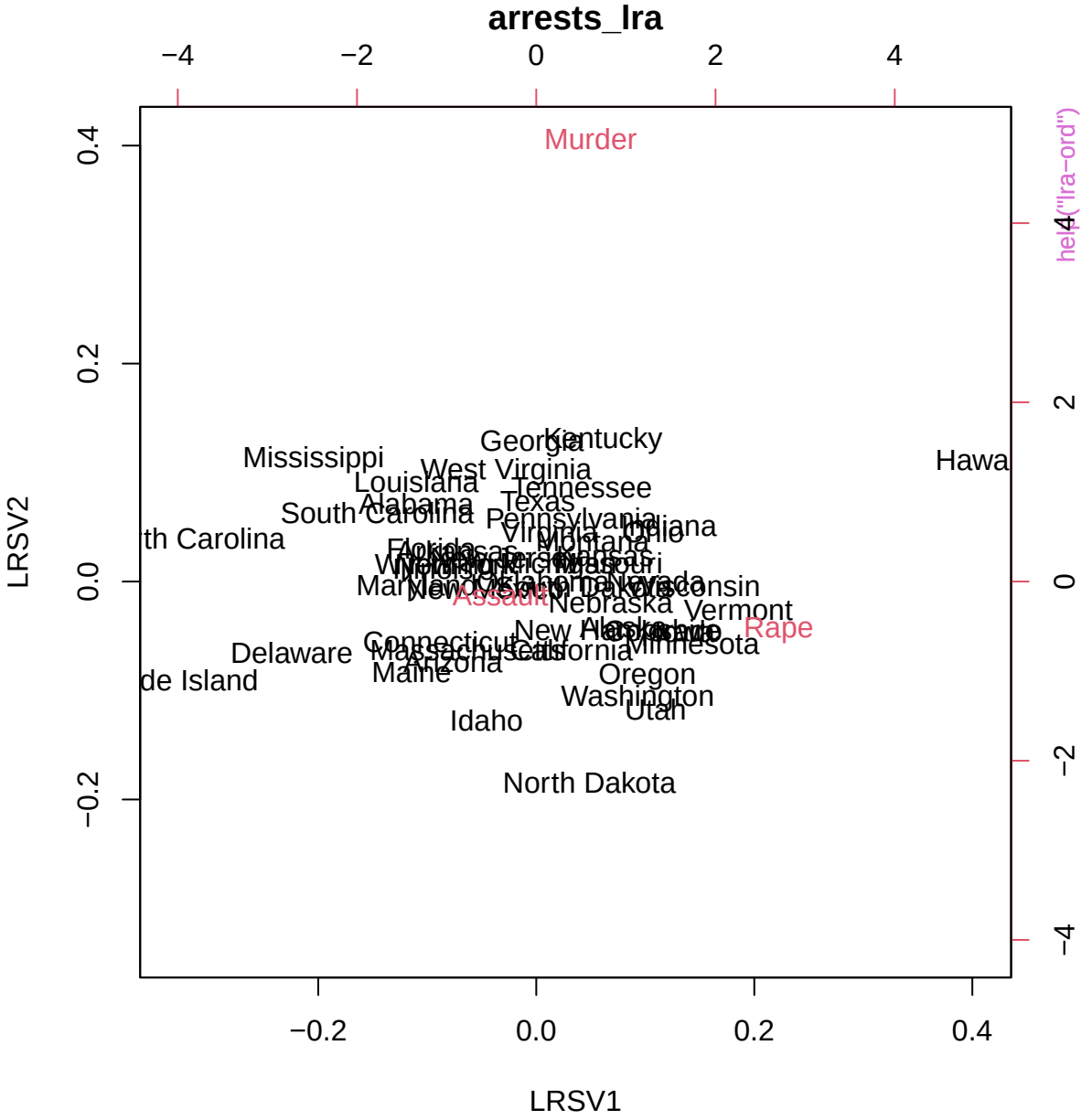

Standardized coefficient biplot of iris LDA
LD2 (1%)
LD1 (99%)
3
2
1
0
−1
−2
−3
−10
−5
0
5
10
Petal.Length
Sepal.Length
Petal.Width
discriminant
case
centroid
grouping
setosa
versicolor
virginica

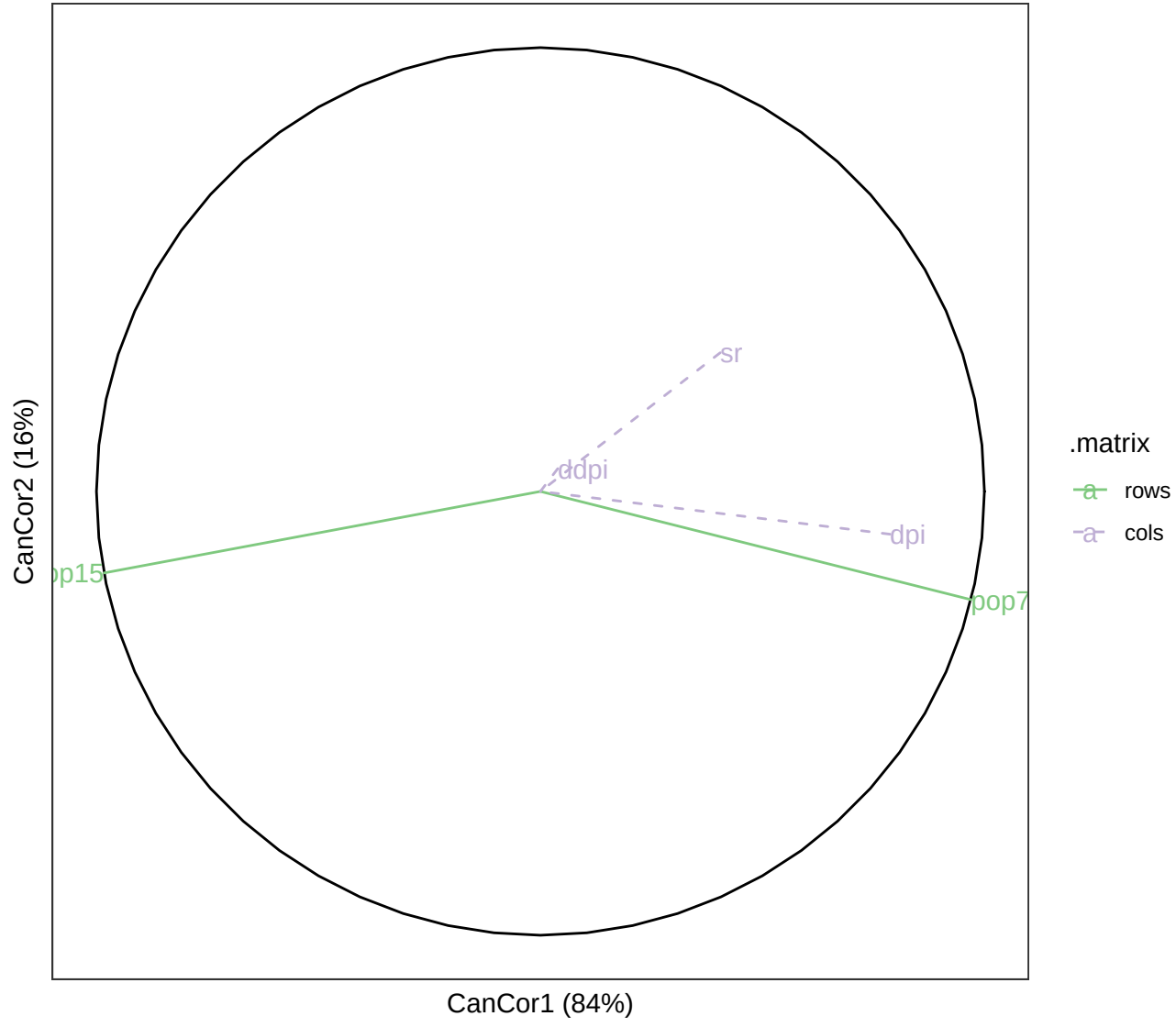
help("lda-ord")

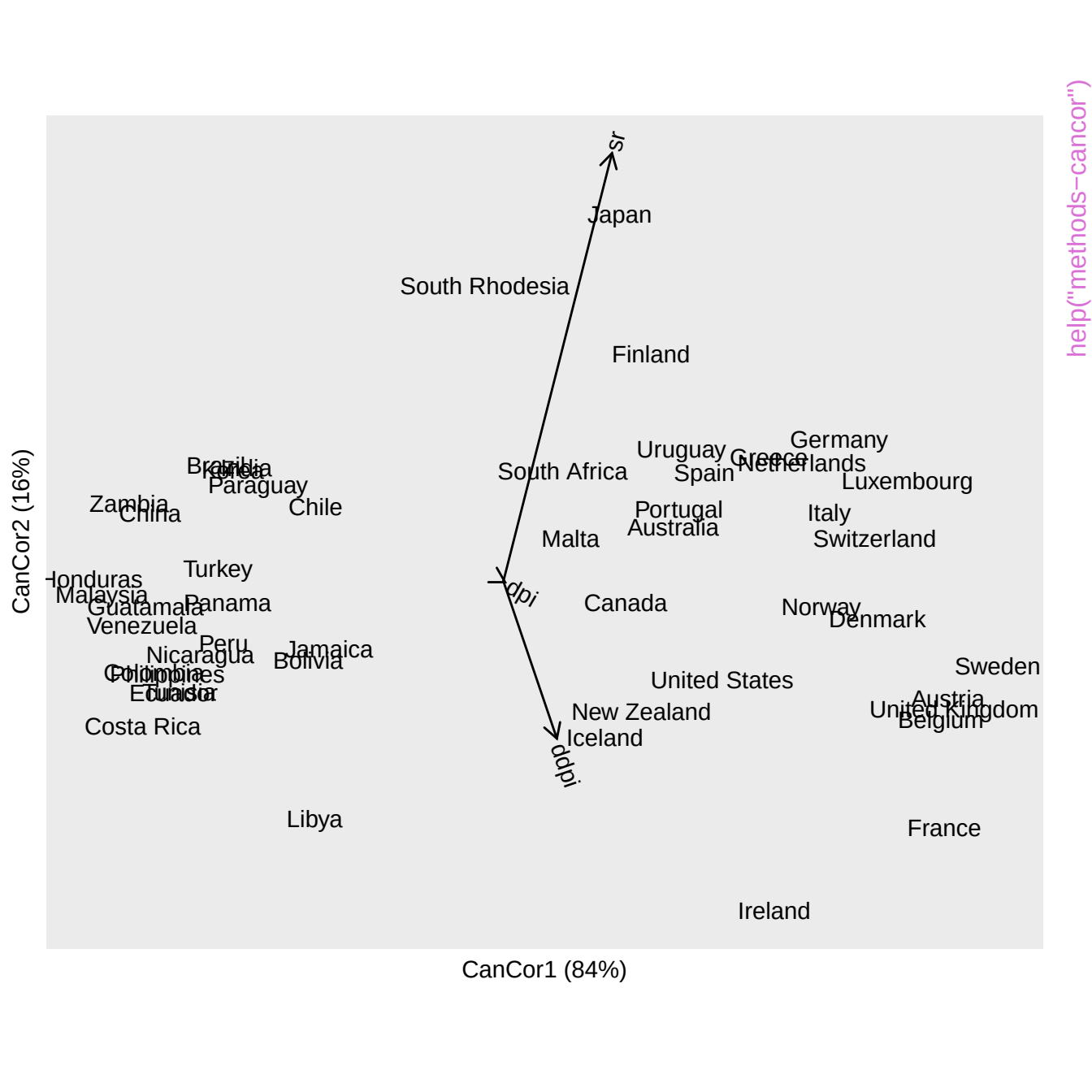

Contribution biplot of iris LDA
LD2 (1%)
LD1 (99%)
2
0
−2
−10
−5
0
5
10
Petal.Length
Petal.Width
discriminant
case
centroid
grouping
setosa
versicolor
virginica

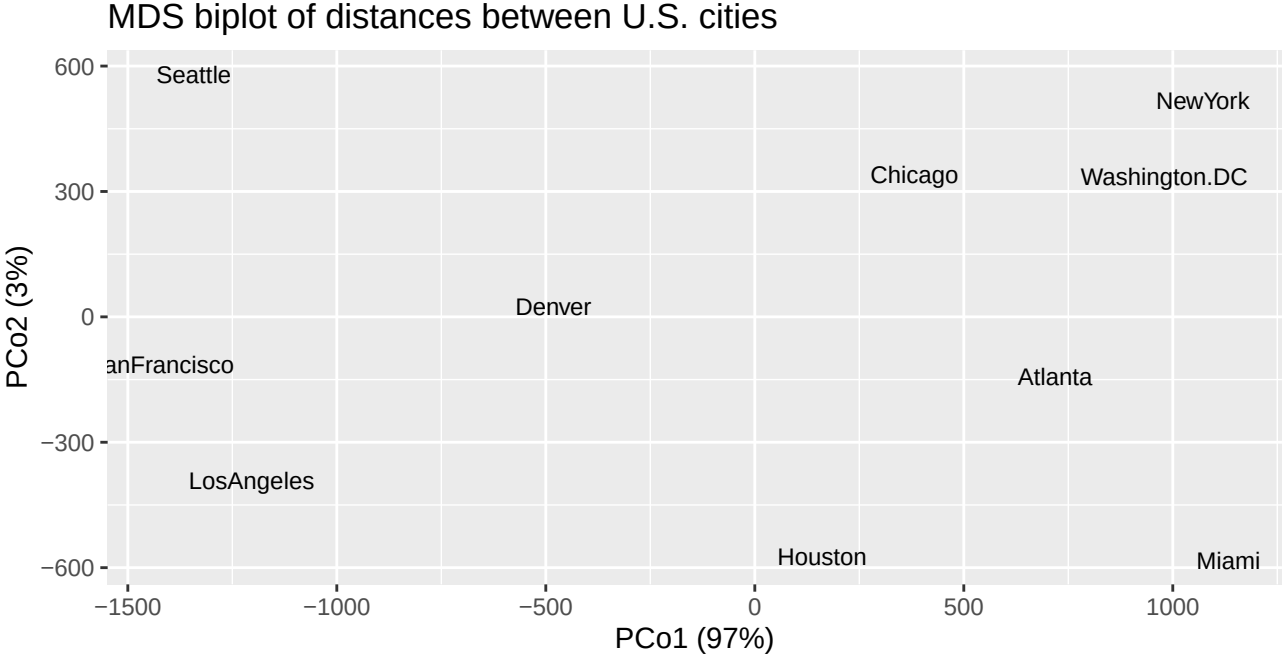
arrests_lra
Variances
0.000
0.002
0.004
0.006
0.008
0.010
0.012
help("lra-ord")


arrests_lra
LRSV1
LRSV2
Murder
Rape
Hawa
Kentucky
Georgia
Mississippi
West Virginia
Louisiana
Tennessee
Texas
Alabama
South Carolina
Pennsylvania
Indiana
Ohio
Virginia
Montana
Kansas
Missouri
Nevada
Wisconsin
Nebraska
Vermont
Minnesota
California
Oregon
Washington
Utah
Delaware
Arizona
Maine
Idaho
North Dakota
Connecticut
Massachusetts
New Hampshire
Maryland
New Mexico
Rhode Island
Carolina
−2
0
2
4
−0.3
−0.2
−0.1
0.0
0.1
0.2
0.3
0.4
−2
0
2
4
−0.3
−0.2
−0.1
0.0
0.1
0.2
0.3
0.4

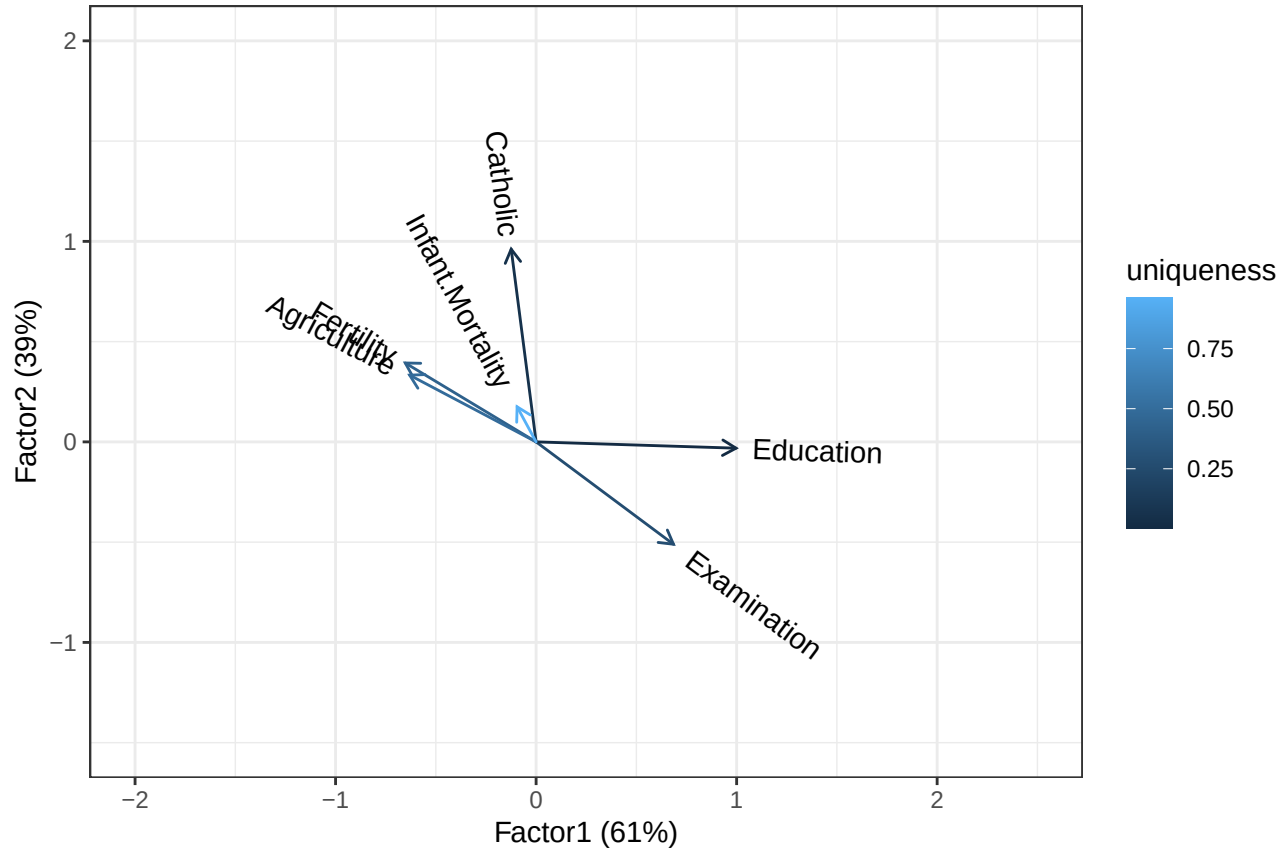

arrests_lra
−4
−2
0
2
4
Murder
Mississippi
Georgia
Kentucky
West Virginia
Louisiana
Tennessee
Alabama
Texas
South Carolina
Pennsylvania
th Carolina
Virginia
Indiana
Montana
Ohio
Nebraska
Vermont
Rape
Minnesota
Delaware
Connecticut
Arizona
Maine
de Island
Oregon
Washington
Utah
Idaho
North Dakota
Hawa
LRSV2
LRSV1
0.4
0.2
0.0
−0.2
−0.2
0.0
0.2
0.4
help("lra−ord")
4
2
0
−2
−4


help("methods-cancor")
CanCor2 (16%)
CanCor1 (84%)
sr
ddpi
dpi
pop15
pop7
.matrix
rows
cols

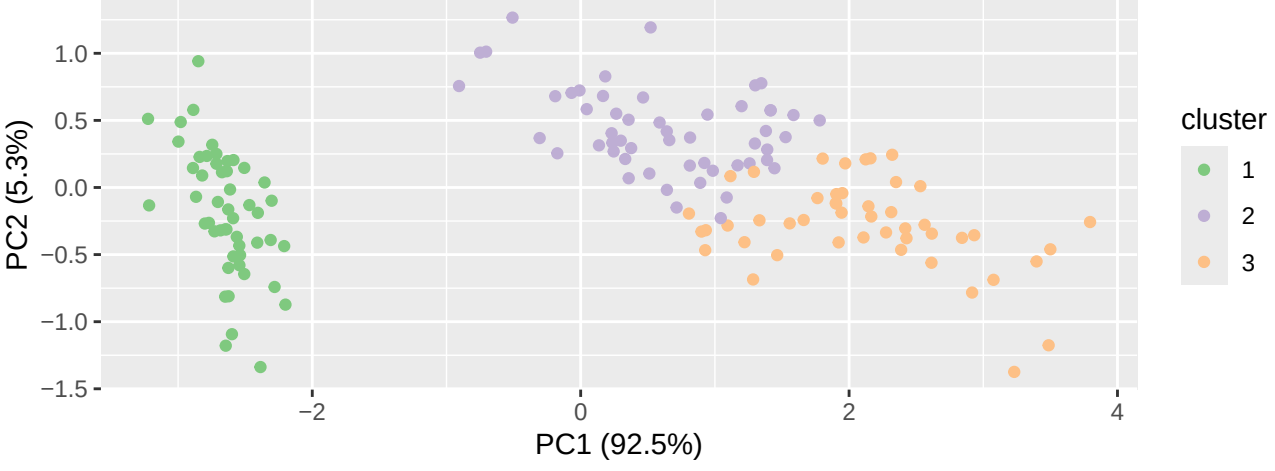

help("methods-cancor")
sr
dpi
ddpi
Japan
South Rhodesia
Finland
Uruguay
Germany
Greece
Netherlands
South Africa
Spain
Luxembourg
Brazil
Korea
Paraguay
Zambia
China
Chile
Portugal
Italy
Australia
Malta
Switzerland
Turkey
Honduras
Malaysia
Guatamala
Panama
Canada
Norway
Denmark
Venezuela
Peru
Jamaica
Nicaragua
Bolivia
Sweden
United States
Austria
United Kingdom
Belgium
New Zealand
Iceland
Costa Rica
Libya
France
Ireland
CanCor1 (84%)
CanCor2 (16%)



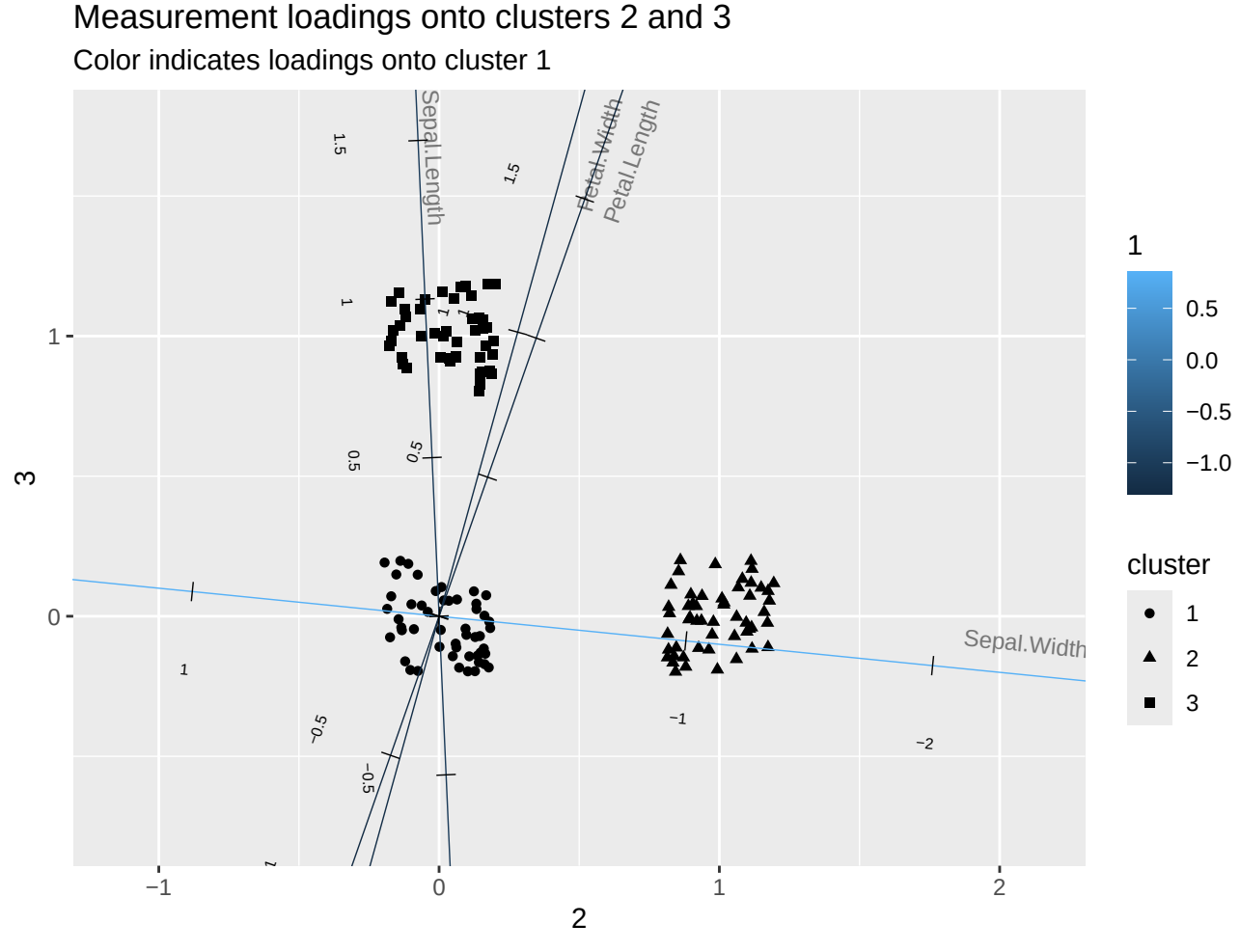
help("methods-cmds")



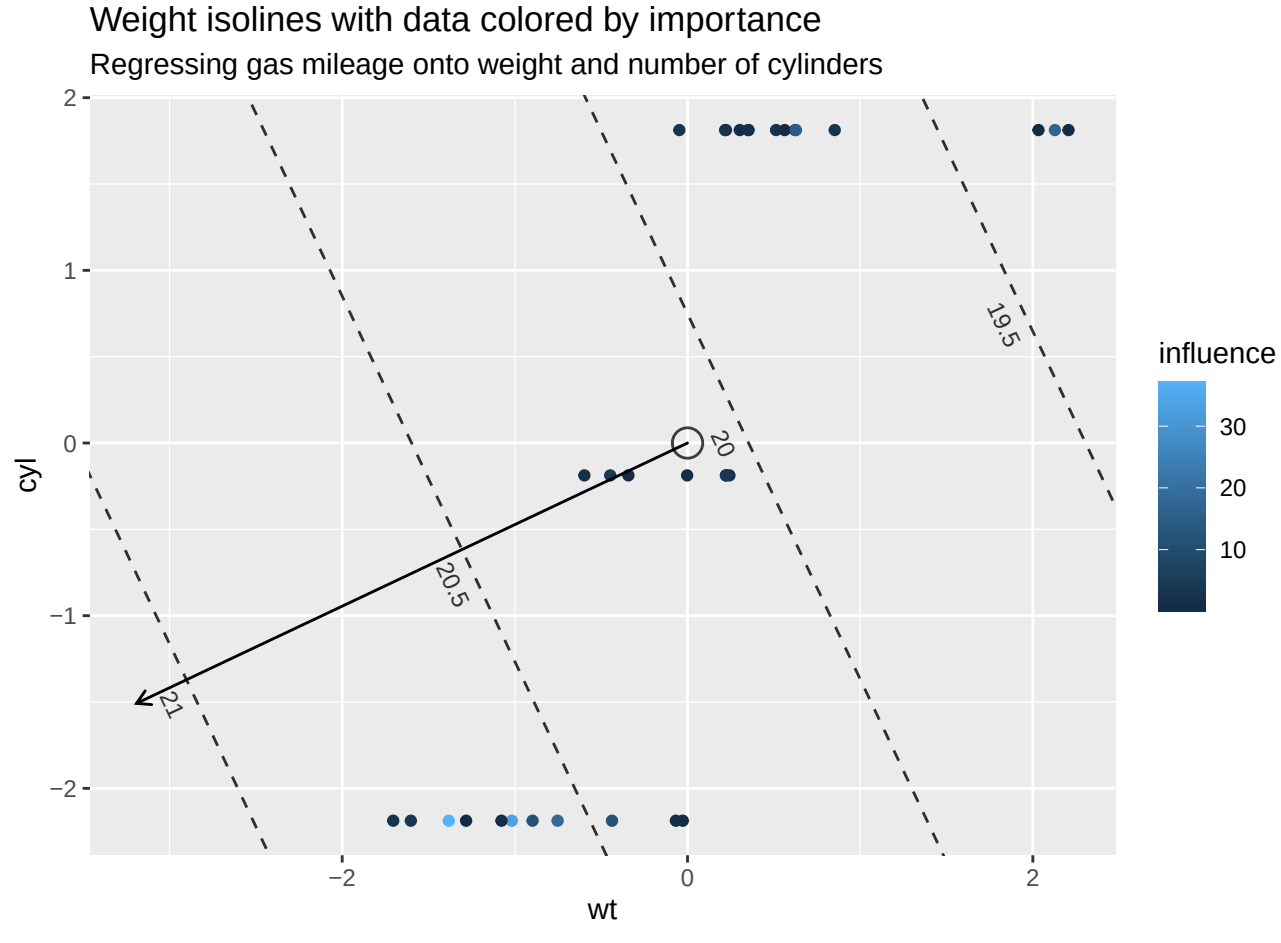
help("methods−factanal")



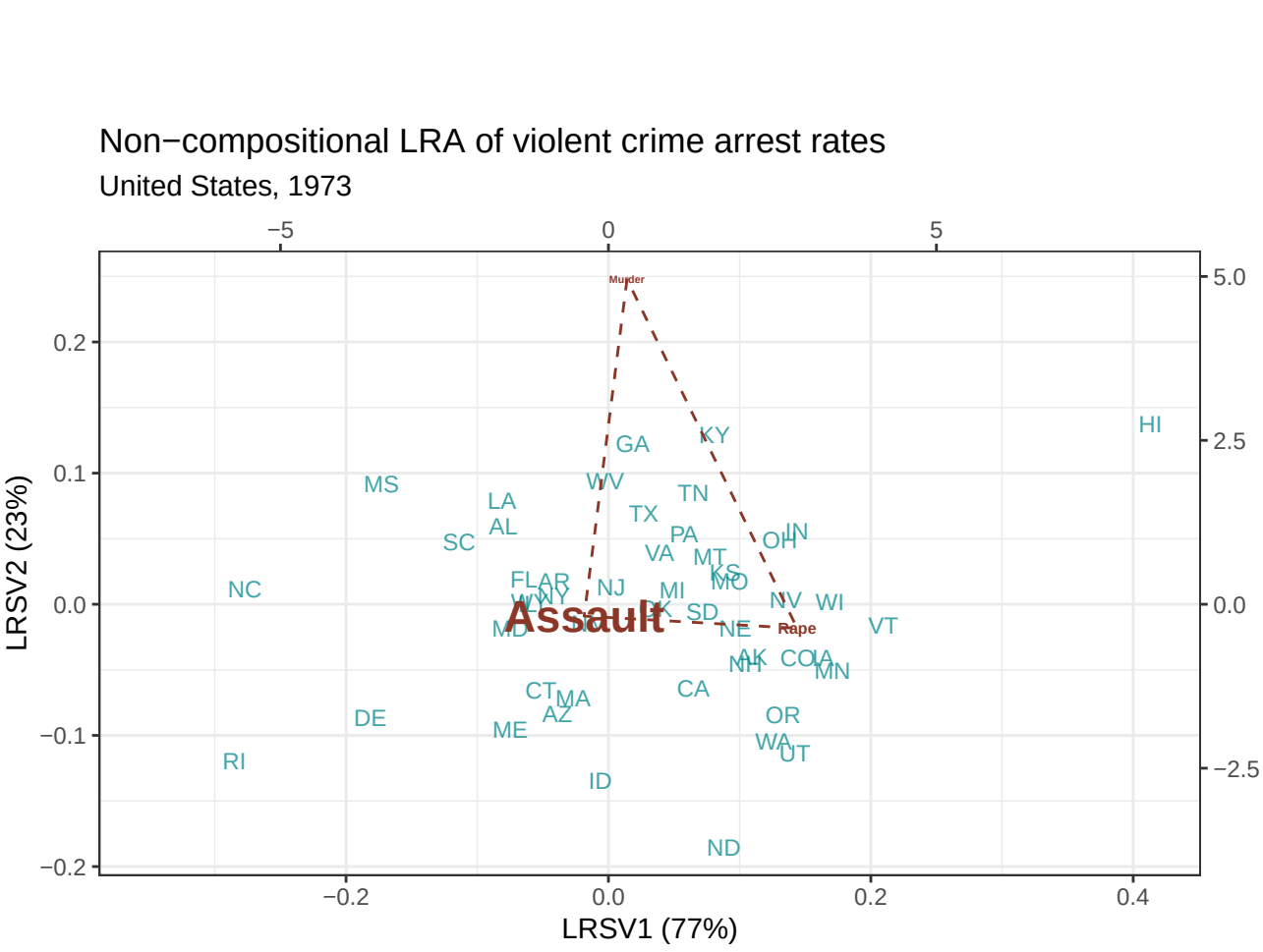
help("methods-kmeans")



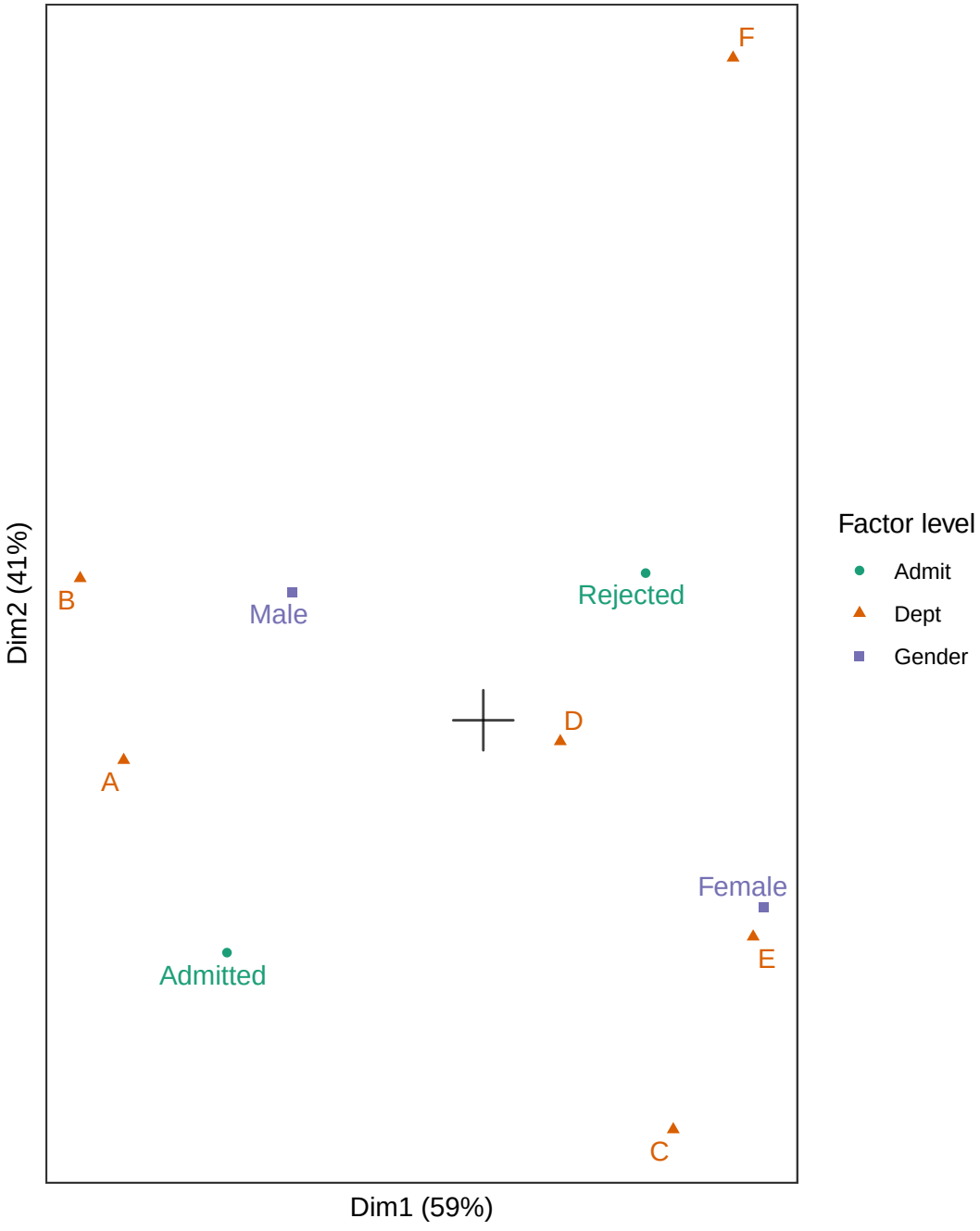
help("methods−kmeans")



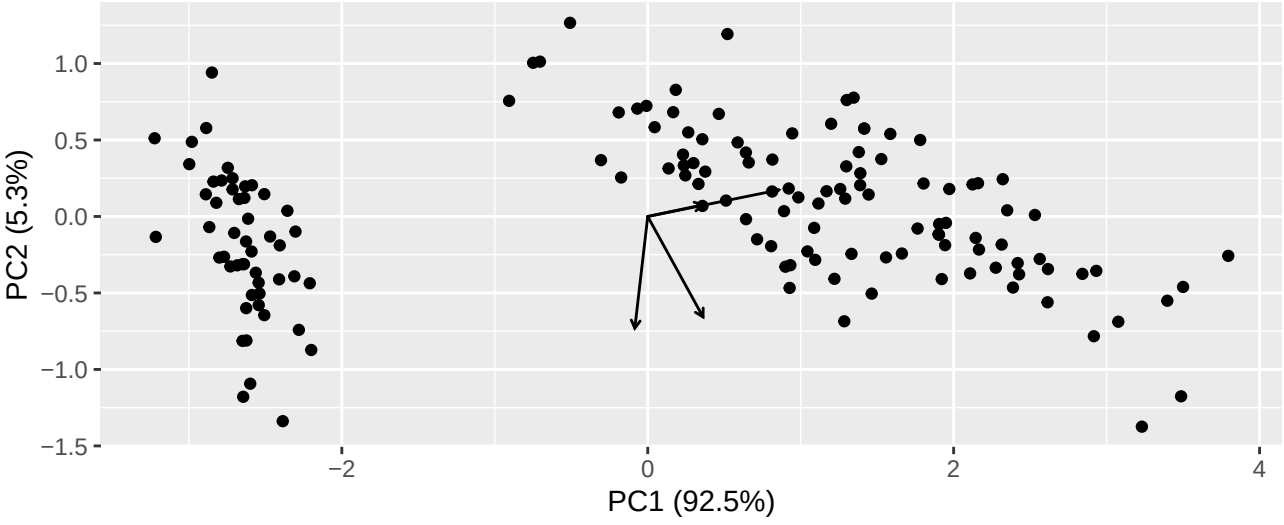
help("methods−lm")



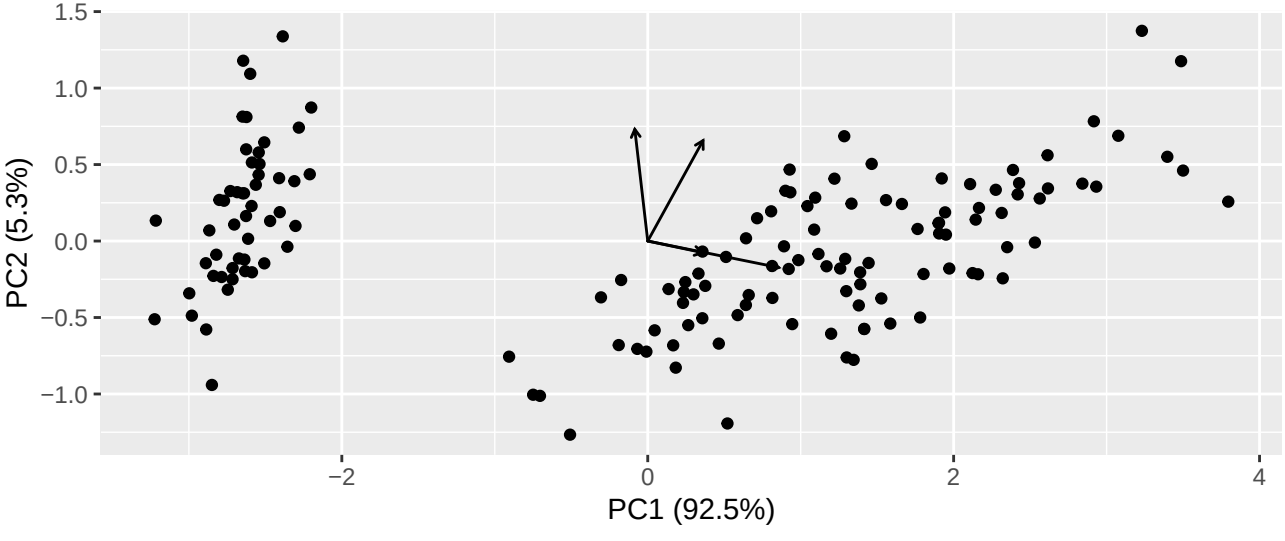
Non−compositional LRA of violent crime arrest rates
United States, 1973
LRSV1 (77%)
LRSV2 (23%)
Murder
Rape
Assault
HI
KY
GA
WV
MS
LA
AL
SC
TN
TX
PA
VA
MT
IN
OH
KS
MO
NC
FL
AR
NJ
MI
NV
WI
SD
NE
VT
MD
AK
CO
IA
NH
MN
CT
MA
AZ
CA
DE
ME
OR
WA
UT
RI
ID
ND
help("methods−lra")

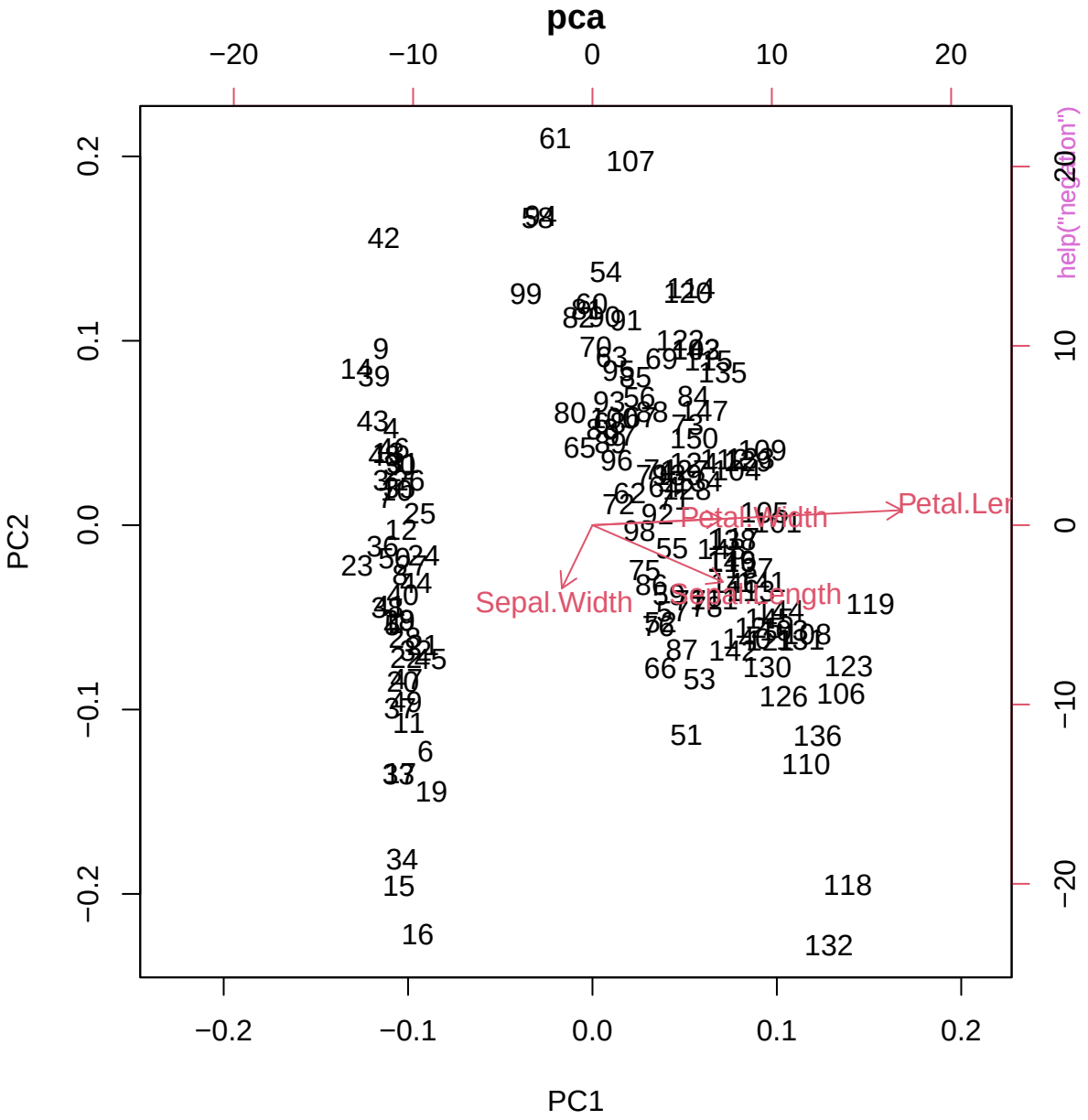

F
B
Male
Rejected
D
A
Female
E
Admitted
C
Dim2 (41%)
Dim1 (59%)
Factor level
Admit
Dept
Gender
help("methods-mca")

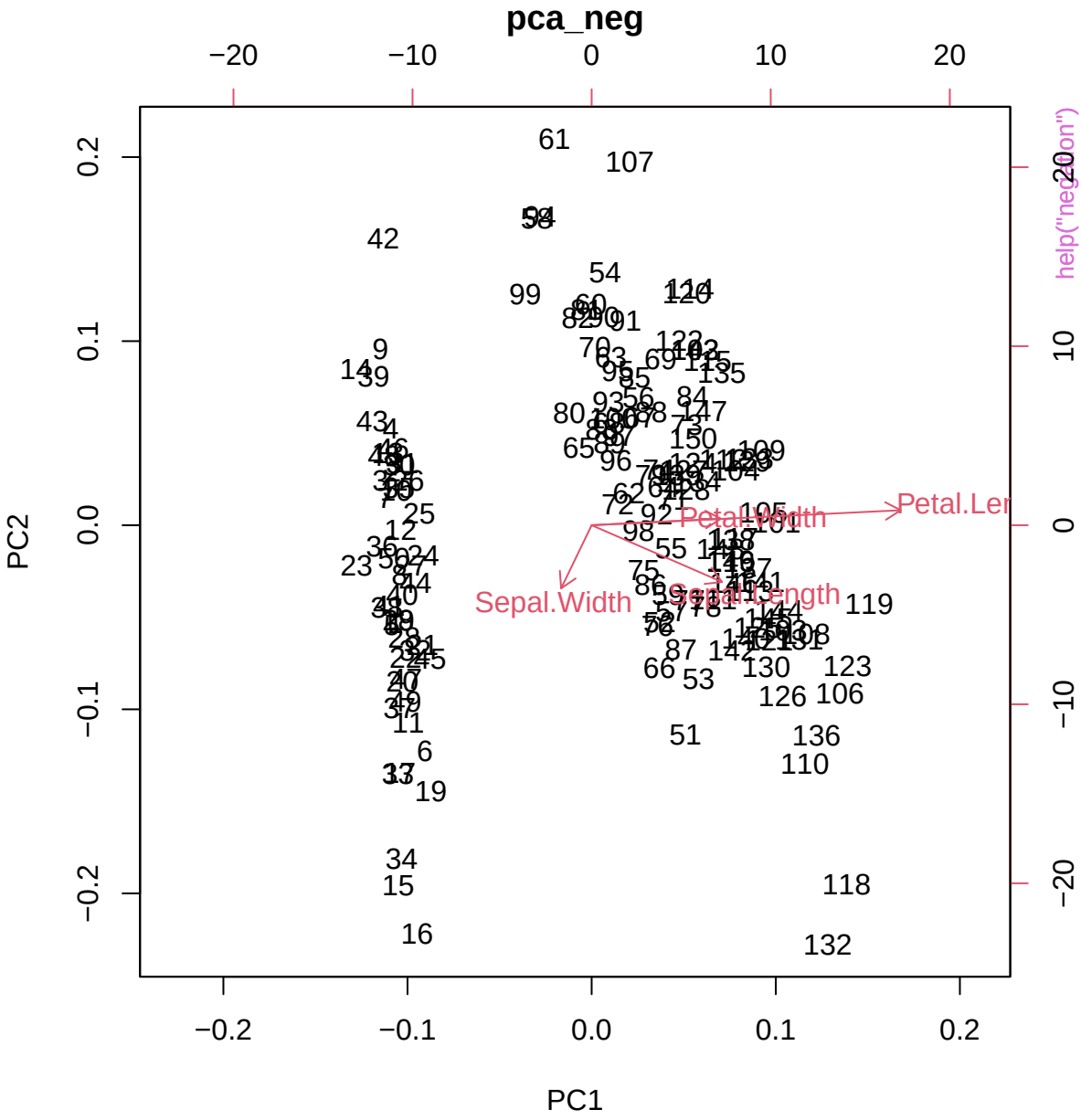
help("negation")

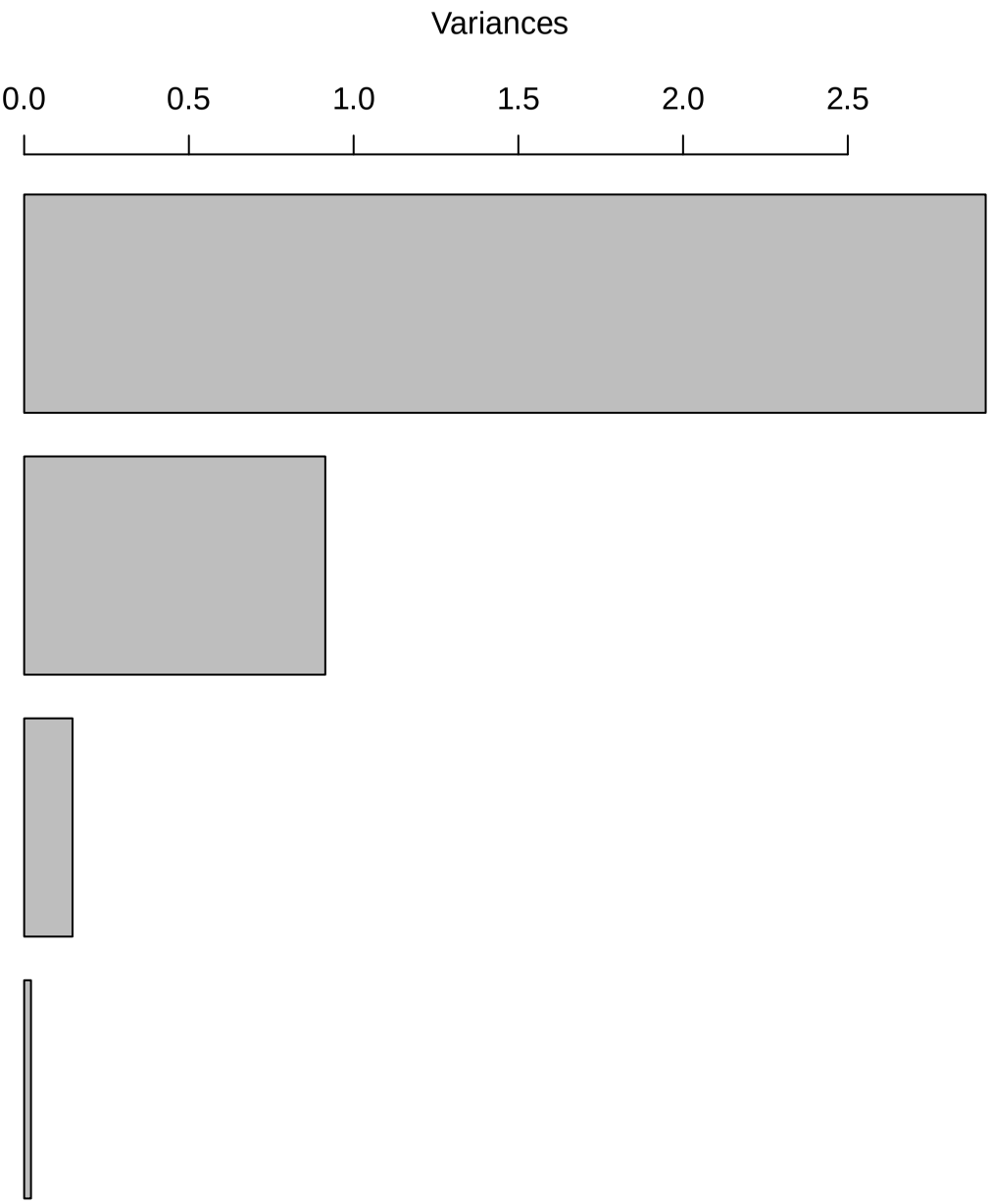


help("negation")

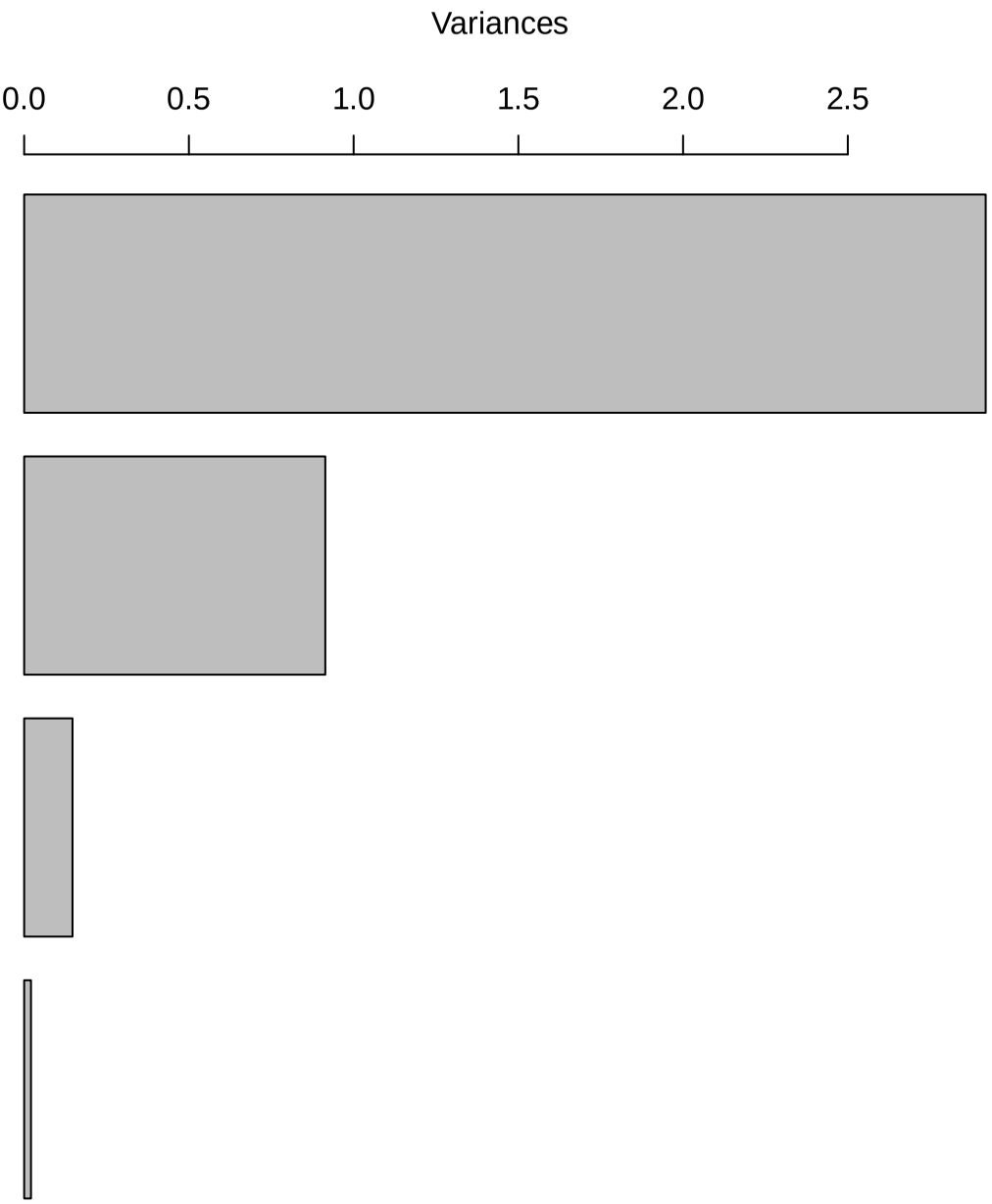



pca
PC1
PC2
help("negation")
Petal.Width
Petal.Length
Sepal.Width
Sepal.Length

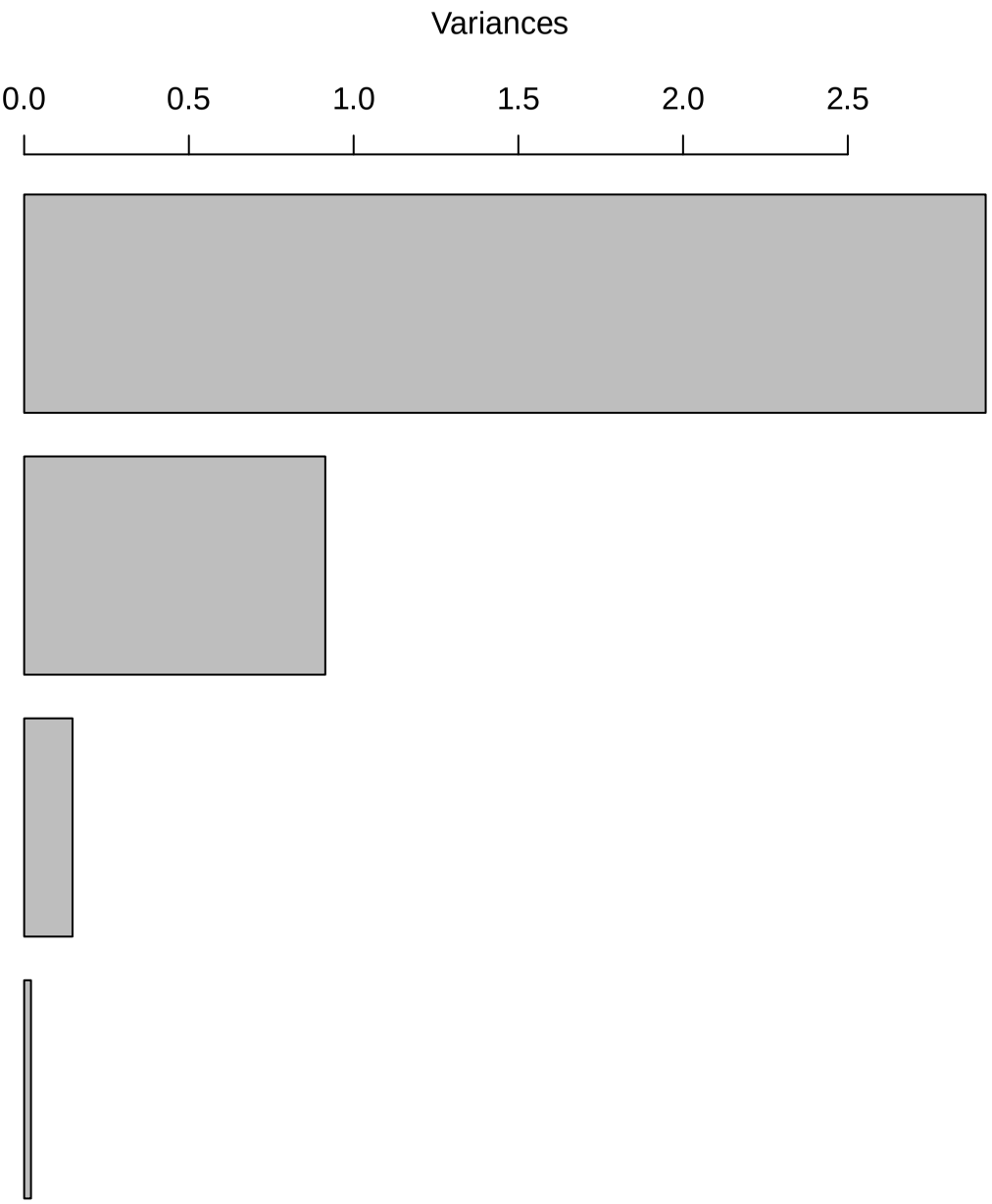

pca_neg
PC1
PC2
help("negate")
Petal.Width
Petal.Length
Sepal.Width
Sepal.Length



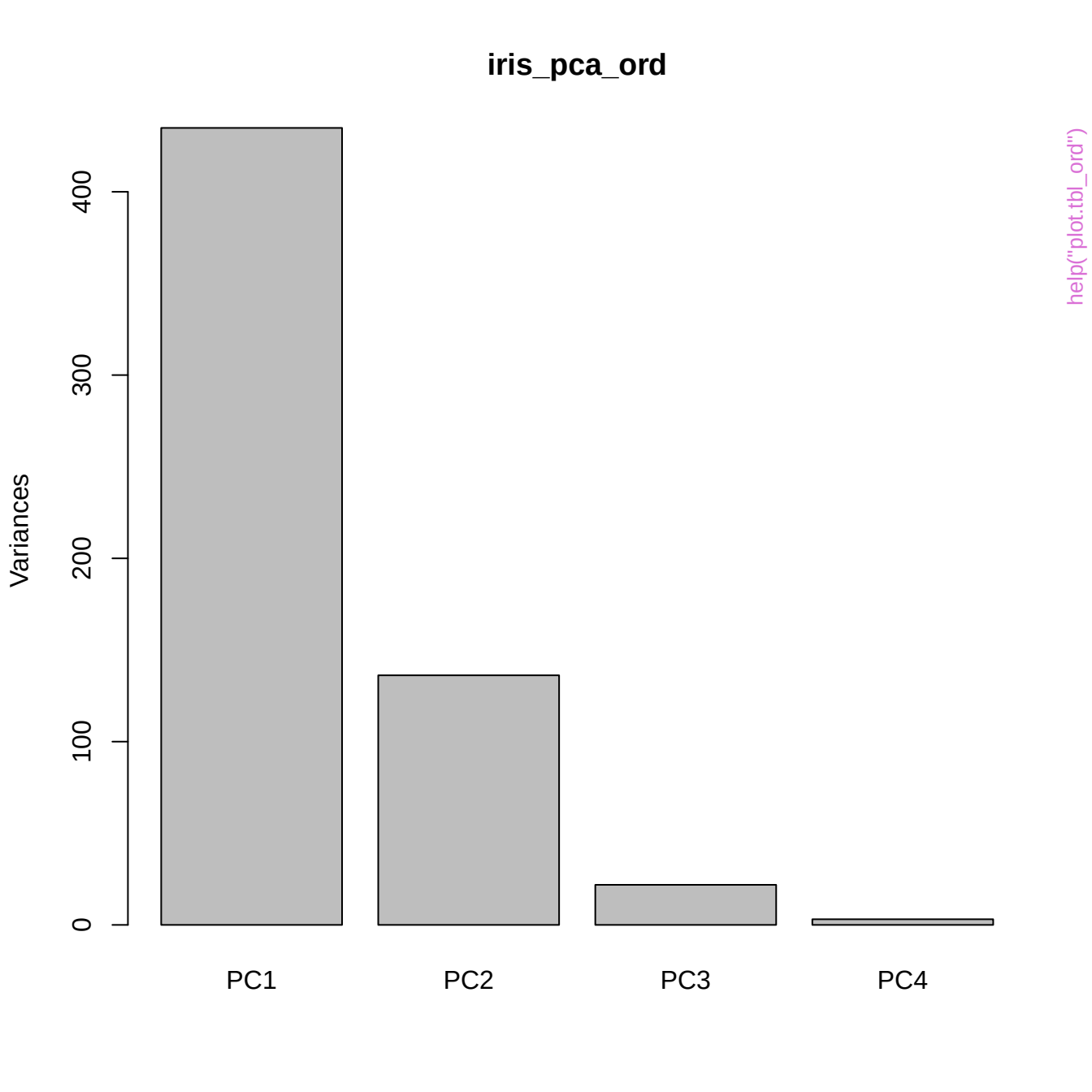
help("plot.tbl_ord")

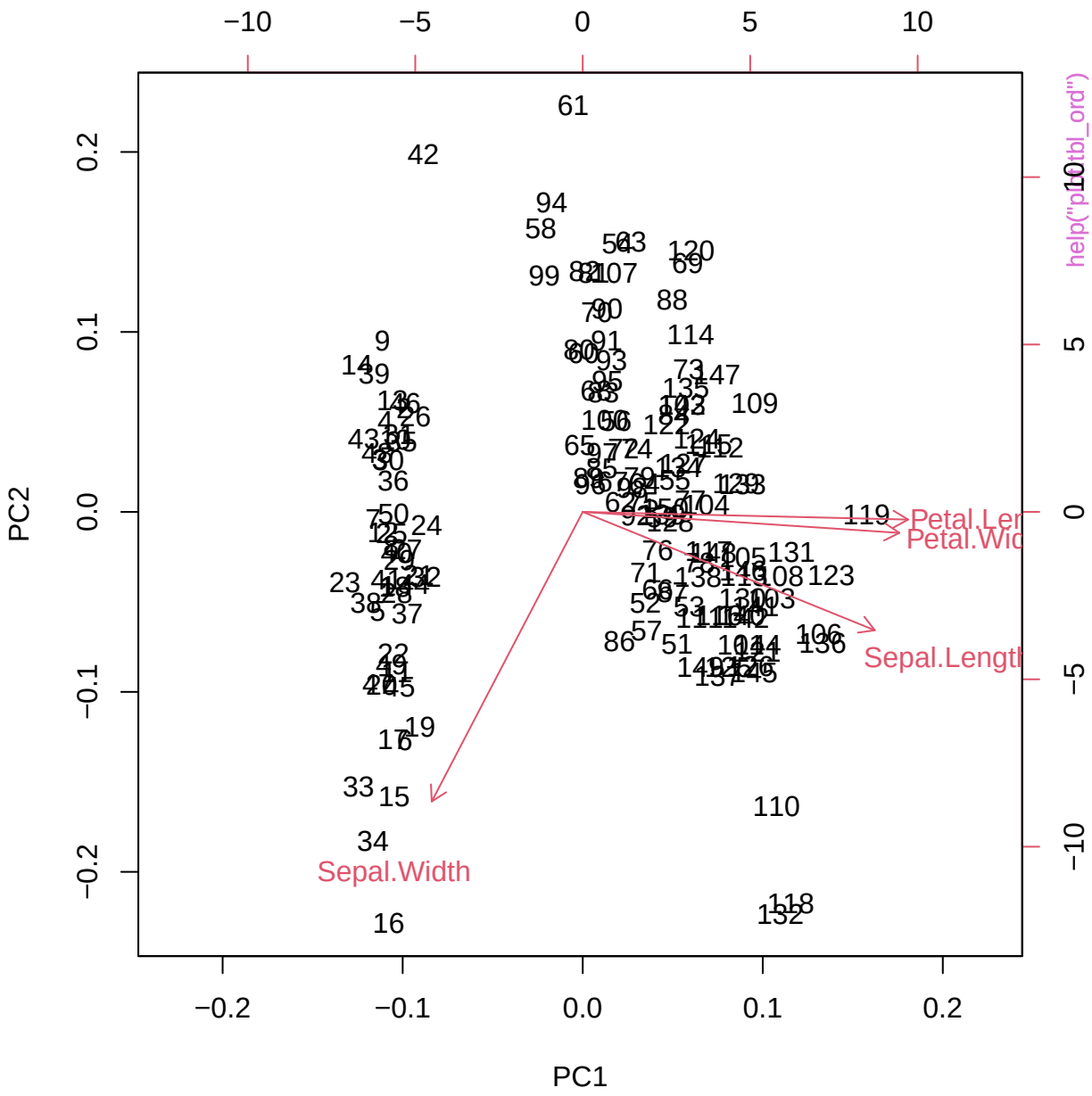


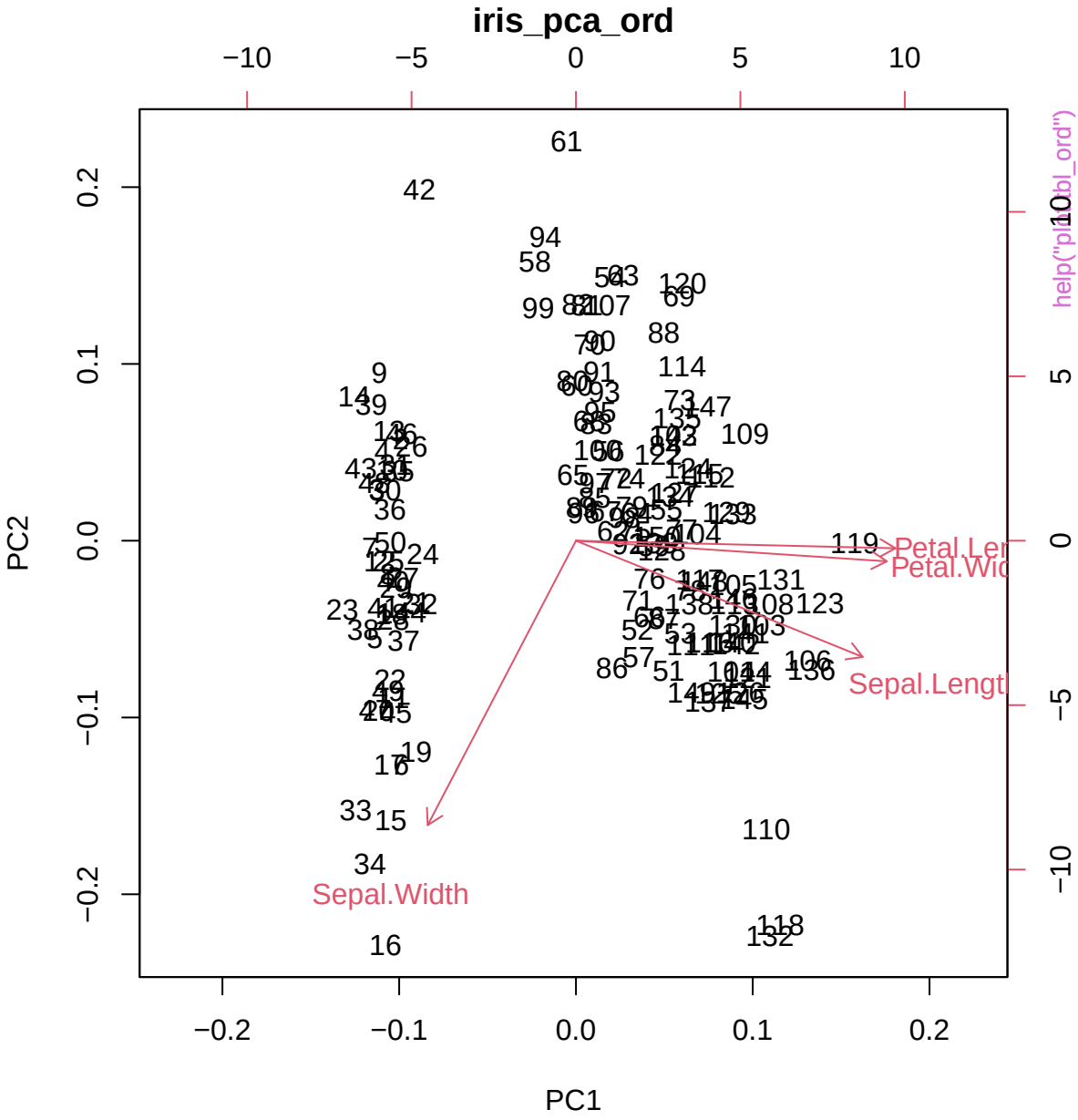
help("plot.tbl_ord")

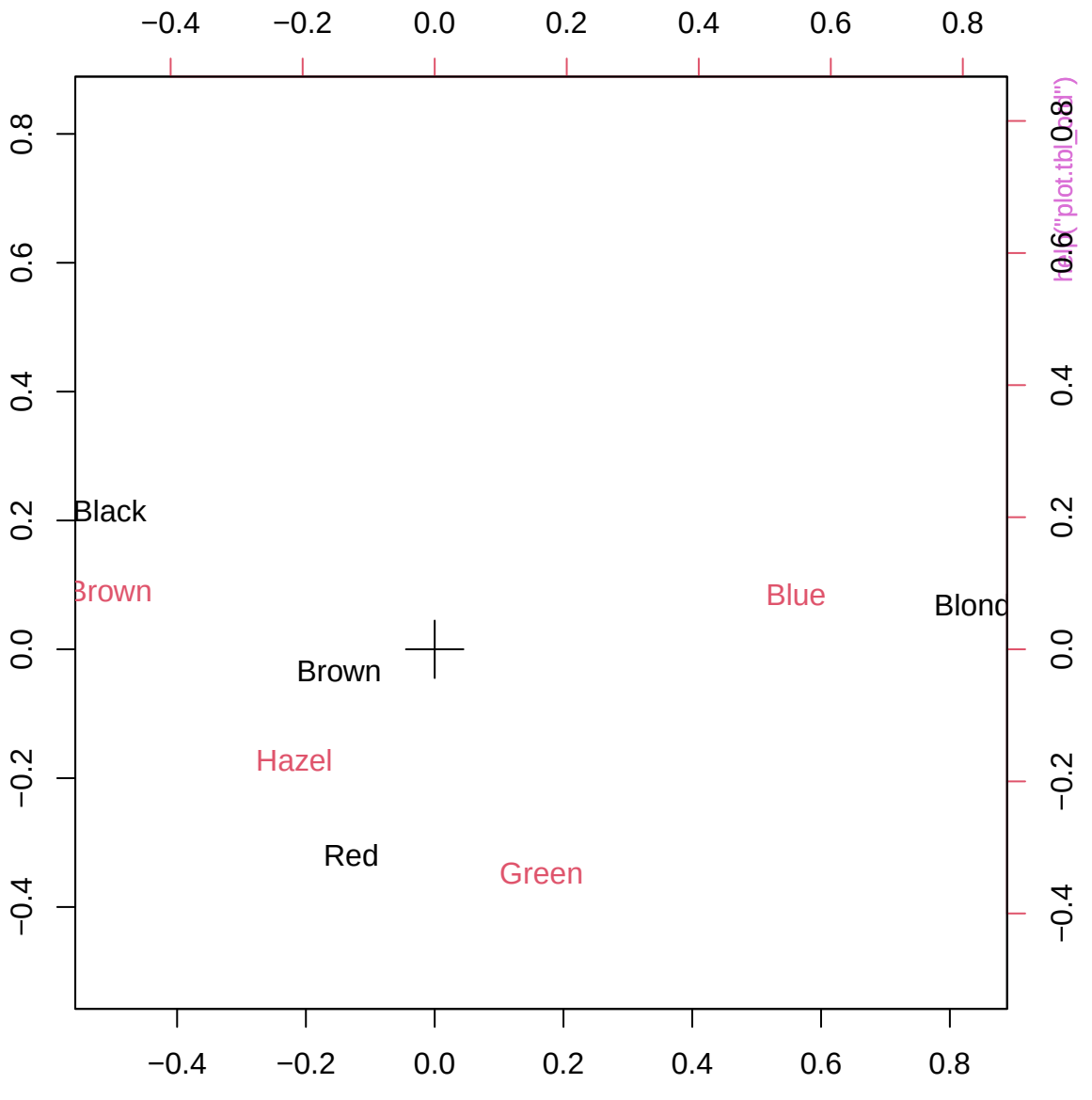


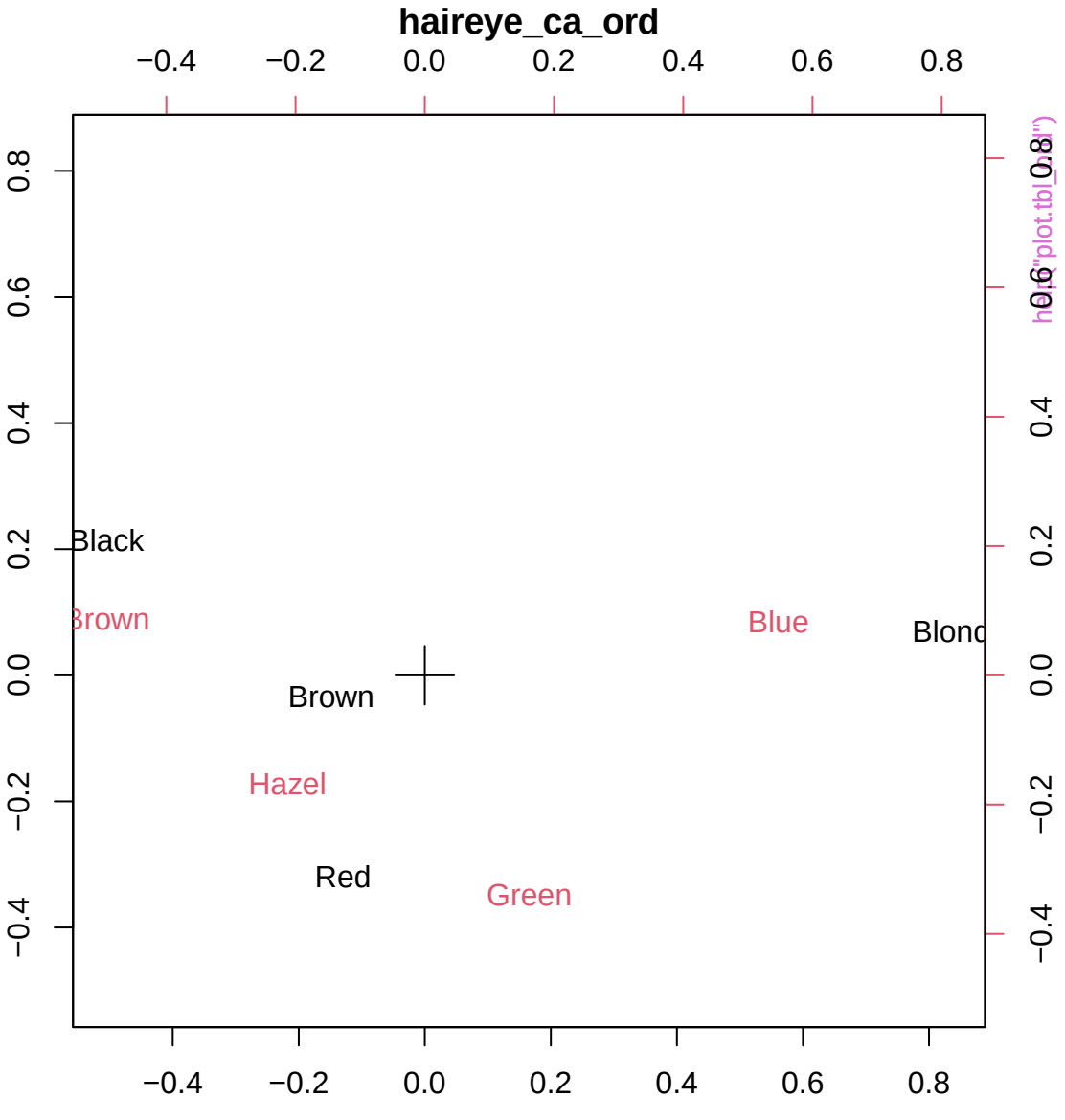
help("plot.tbl_ord")

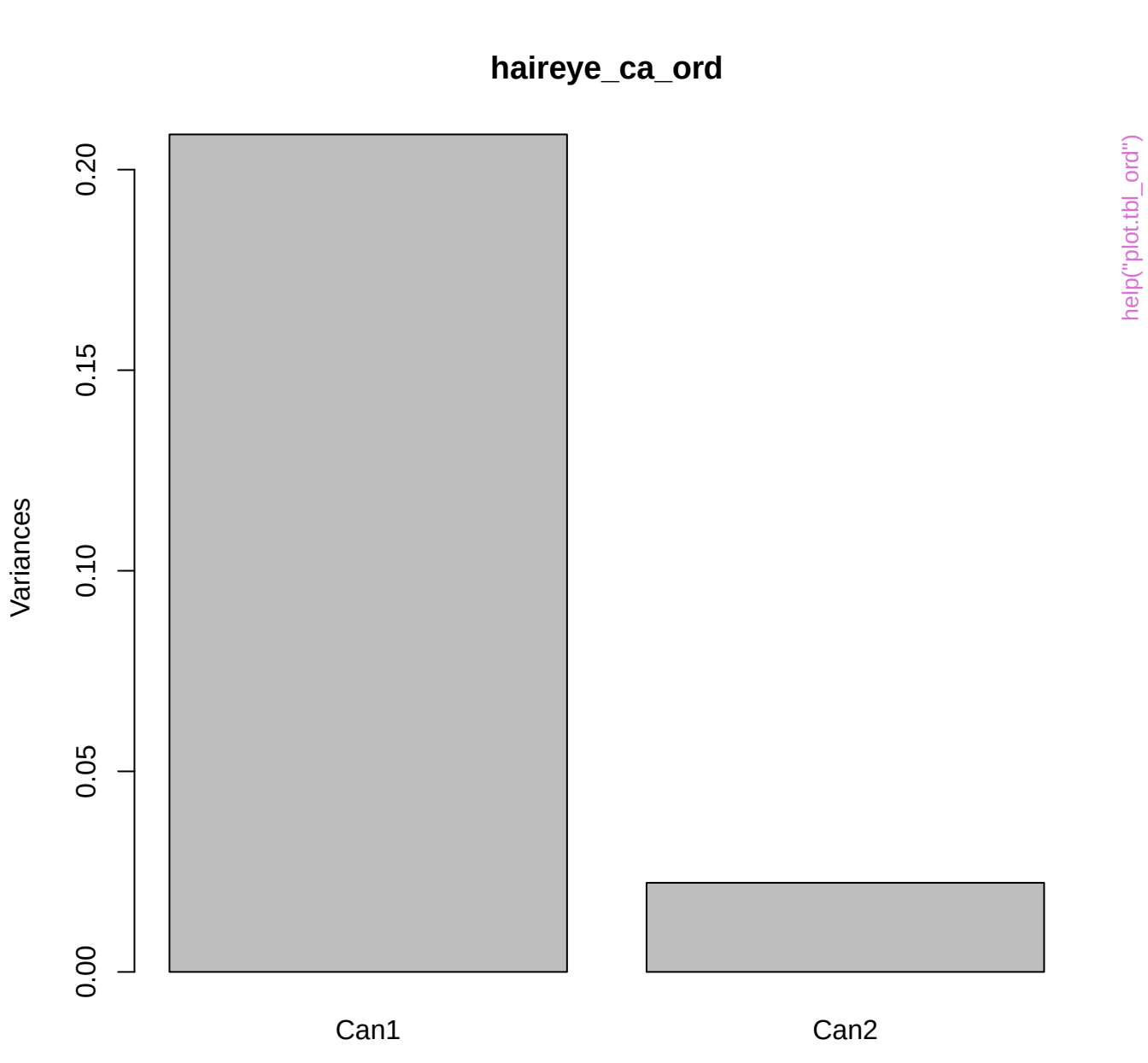

iris_pca_ord
Variances
0
100
200
300
400
PC1
PC2
PC3
PC4
help("plot.tbl_ord")

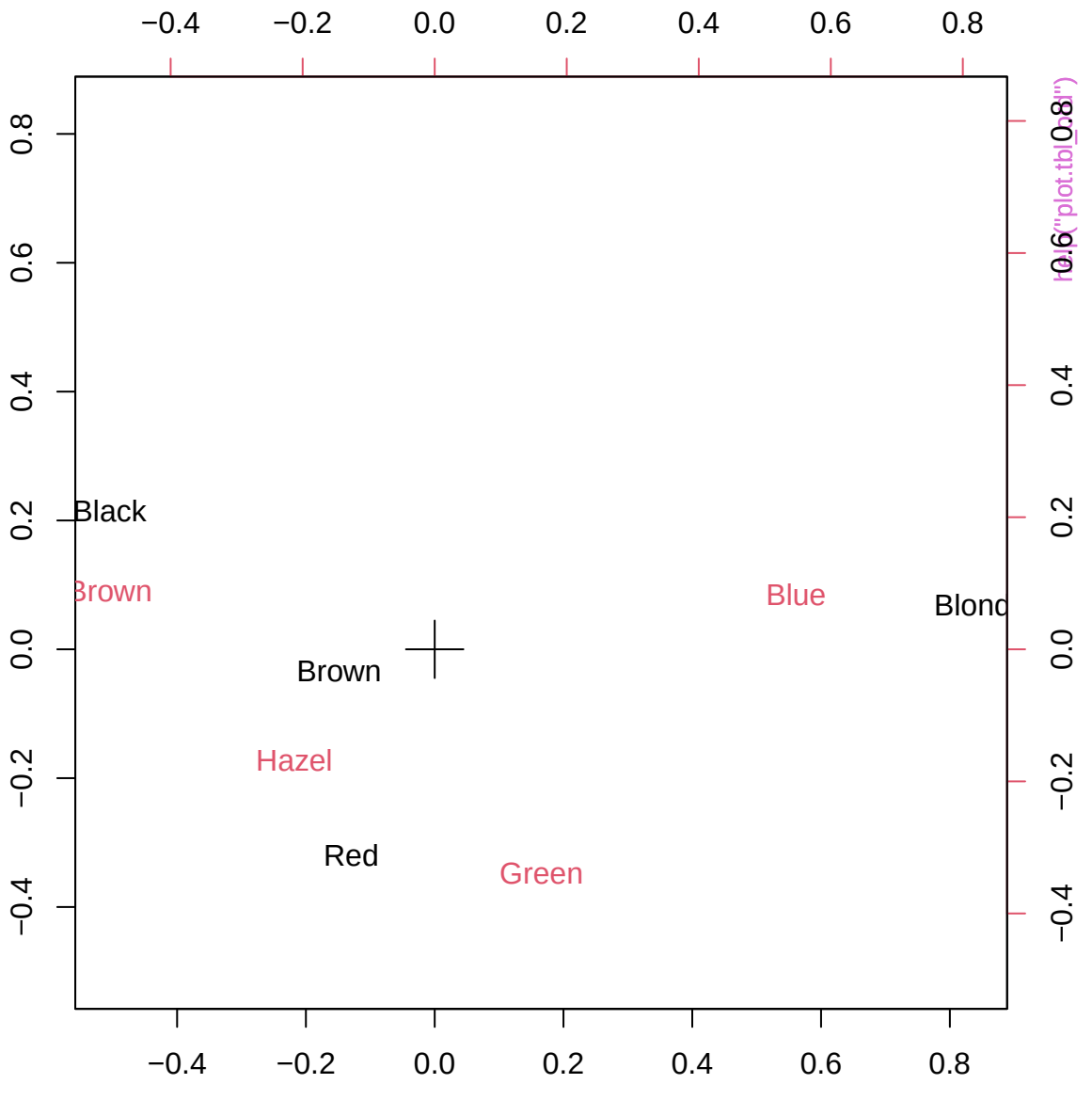

PC1
PC2
help("ptbl_ord")
Sepal.Width
Petal.Len
Petal.Wid
Sepal.Length

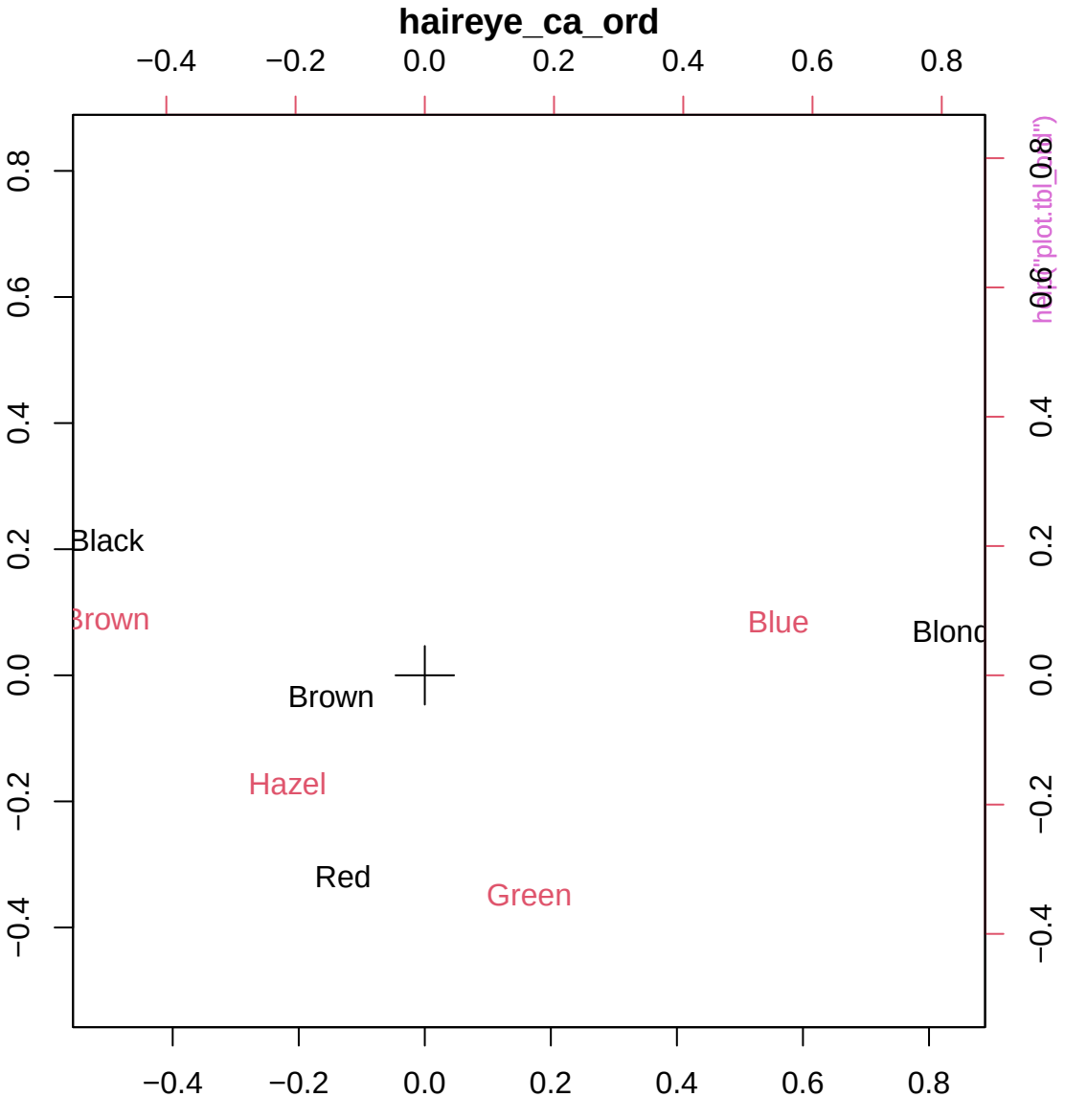

iris_pca_ord
PC1
PC2
help("plot_ord")
Petal.Le
Petal.Wid
Sepal.Lengt
Sepal.Width

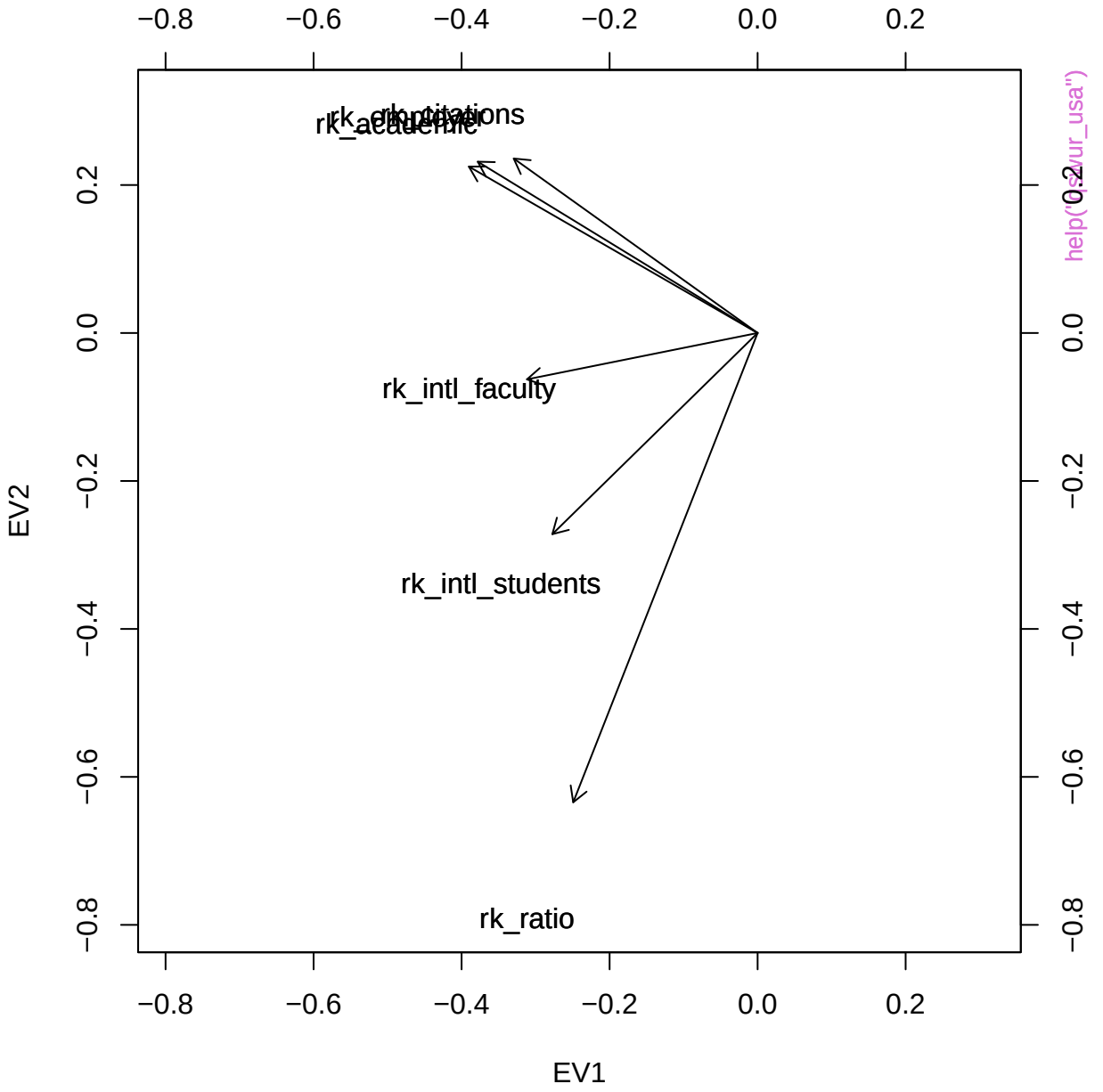

−0.4
−0.2
0.0
0.2
0.4
0.6
0.8
Black
Brown
Brown
Blue
Blond
Hazel
Red
Green

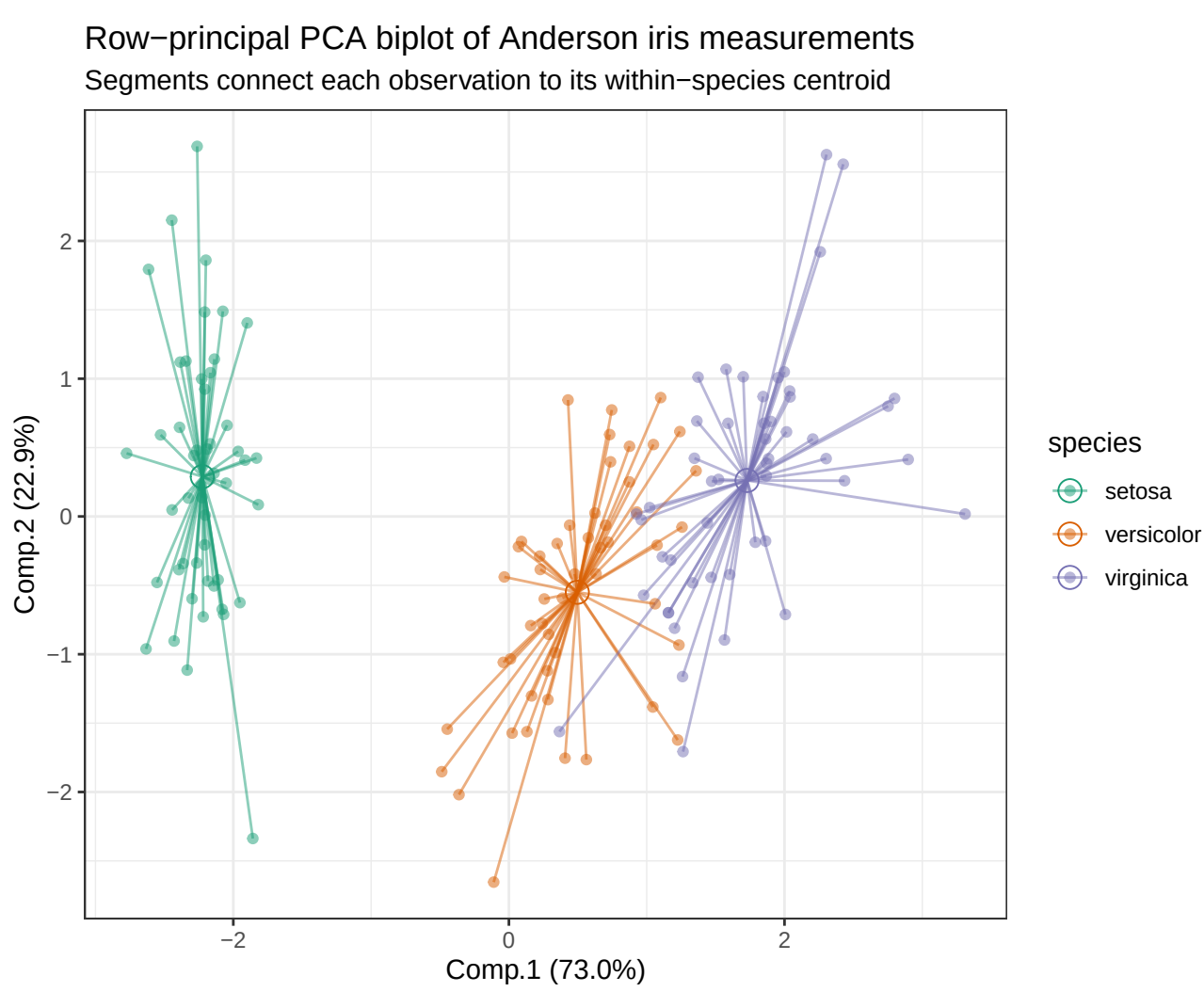

haireye_ca_ord
−0.4
−0.2
0.0
0.2
0.4
0.6
0.8
Black
Brown
Blue
Blond
Brown
Hazel
Red
Green


haireye_ca_ord
Variances
0.00
0.05
0.10
0.15
0.20
Can1
Can2
help("plot.tbl_ord")

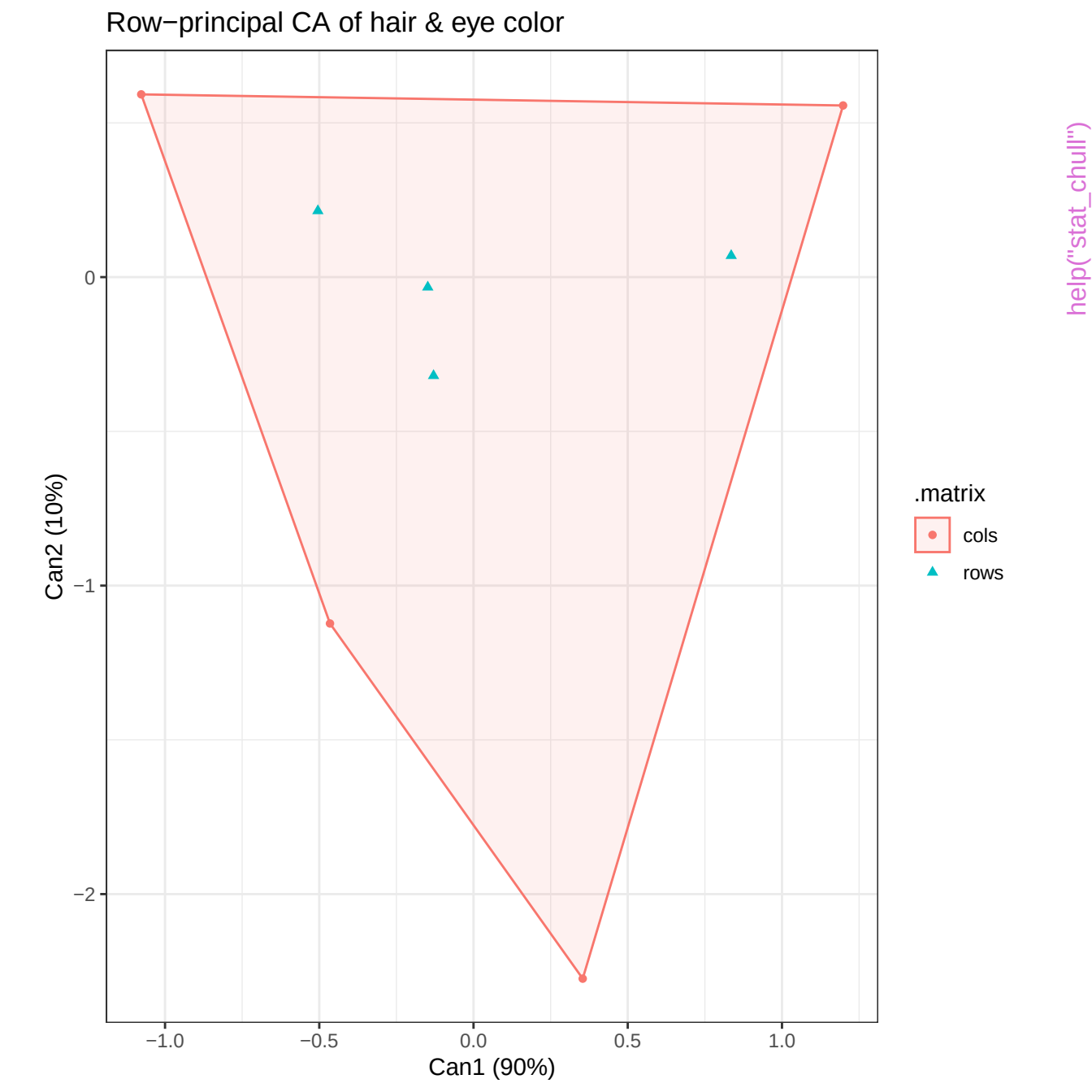

−0.4
−0.2
0.0
0.2
0.4
0.6
0.8
Black
Brown
Brown
Blue
Blond
Hazel
Red
Green

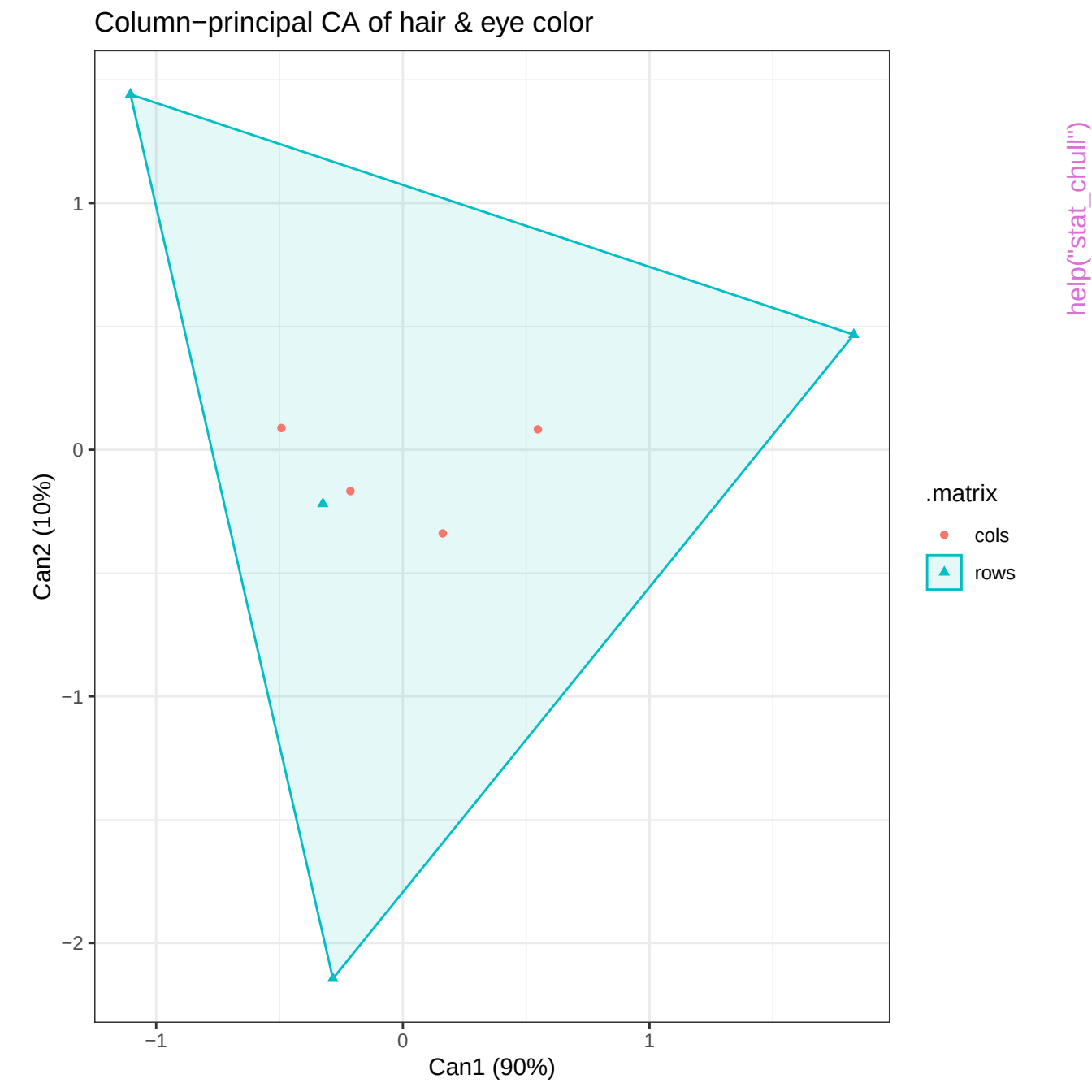

haireye_ca_ord
−0.4
−0.2
0.0
0.2
0.4
0.6
0.8
Black
Brown
Blue
Blond
Brown
Hazel
Red
Green

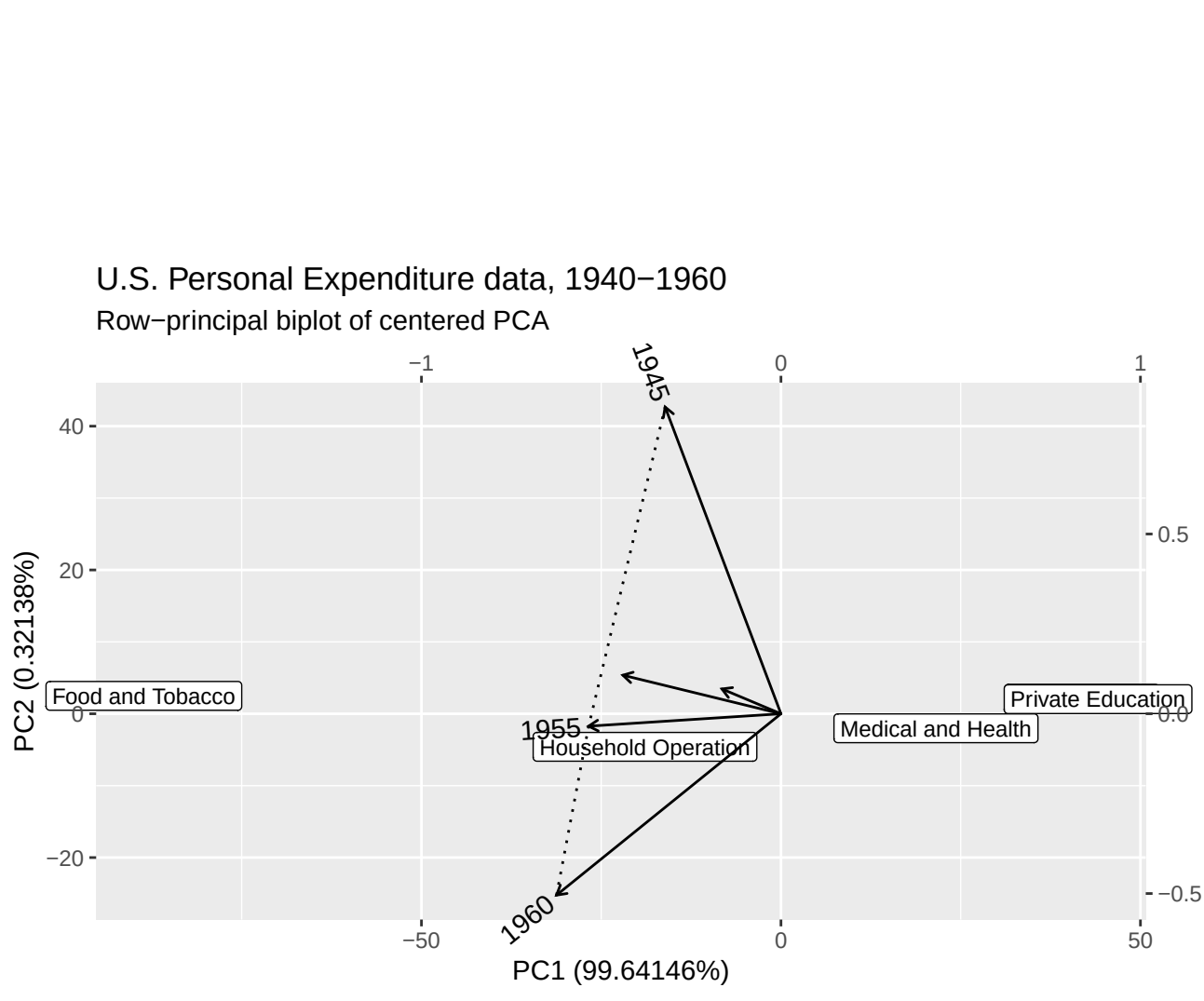

−0.8
−0.6
−0.4
−0.2
0.0
0.2
rk_academic
rk_intl_faculty
rk_intl_students
rk_ratio
EV1
EV2
help("plot.svur_usa")



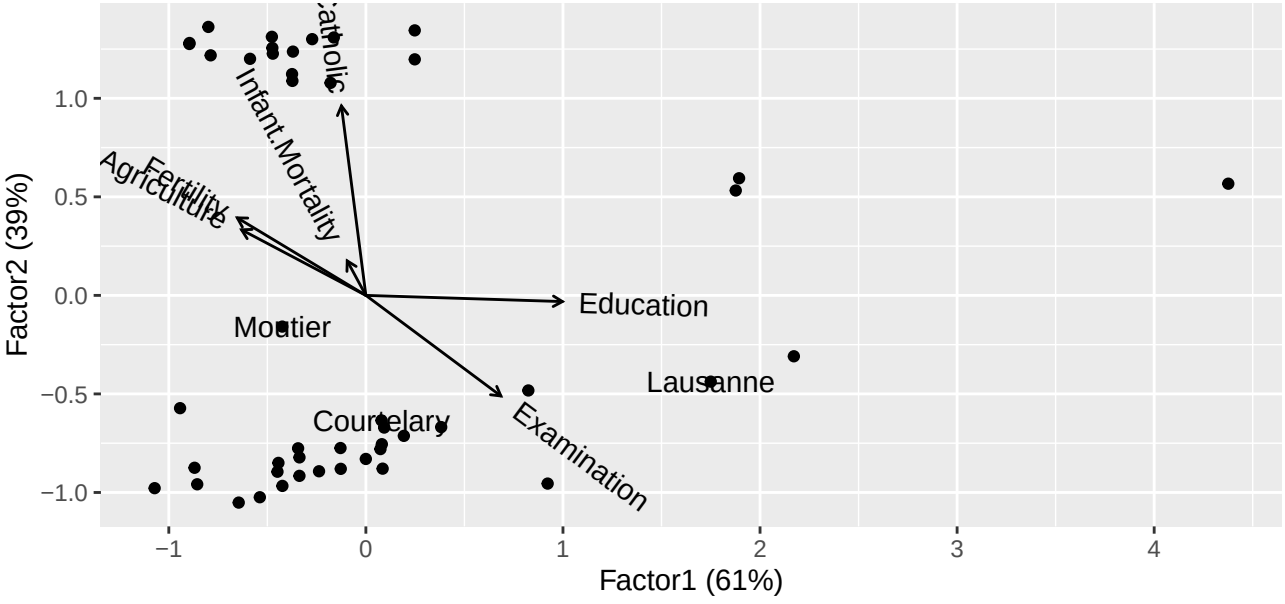
help("stat_center")


Row−principal CA of hair & eye color
help("stat_chull")
Can2 (10%)
0
−1
−2
−1.0
−0.5
0.0
0.5
1.0
Can1 (90%)
.matrix
cols
rows

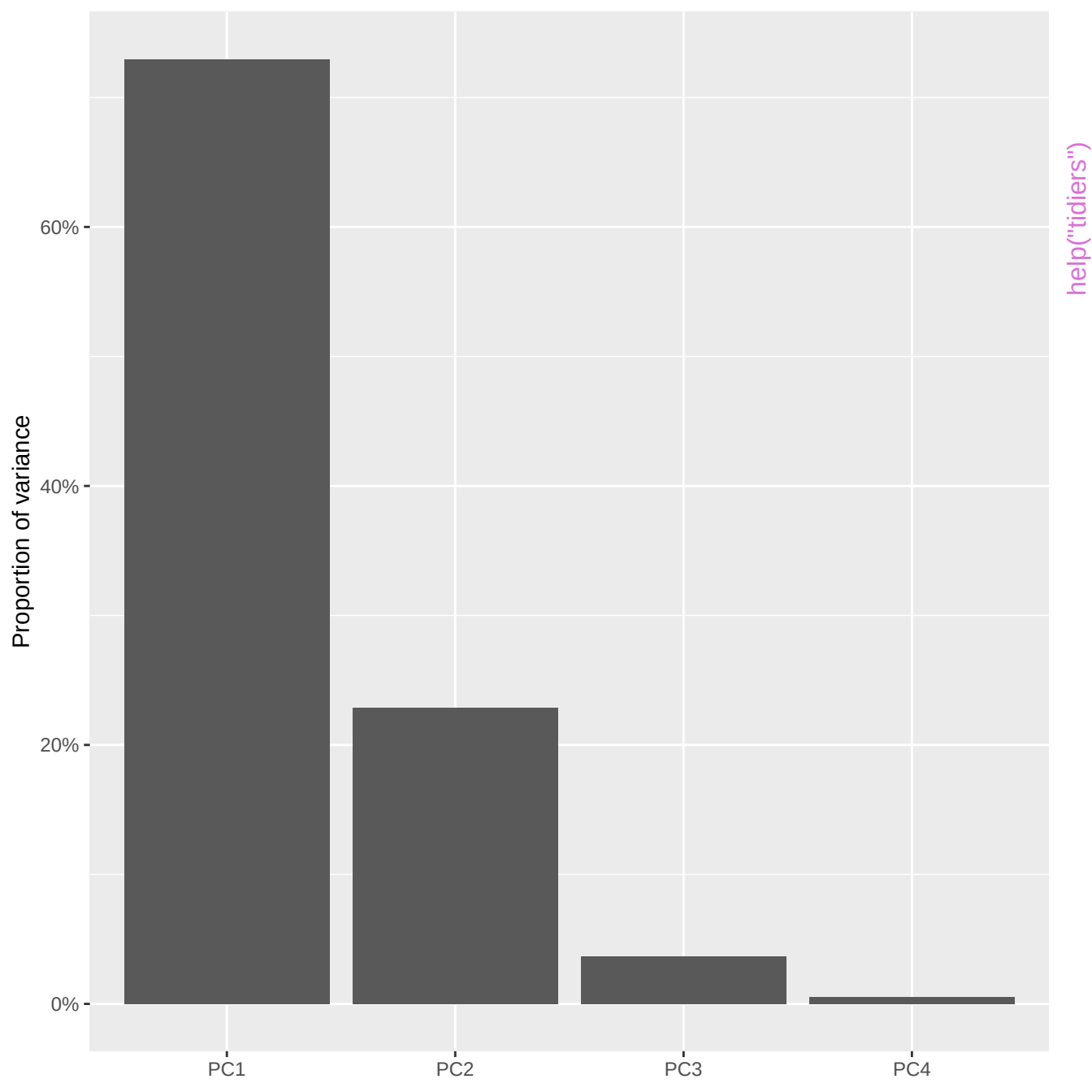

Column−principal CA of hair & eye color
Can2 (10%)
Can1 (90%)
1
0
−1
−2
−1
0
1
.matrix
cols
rows
help("stat_chull")

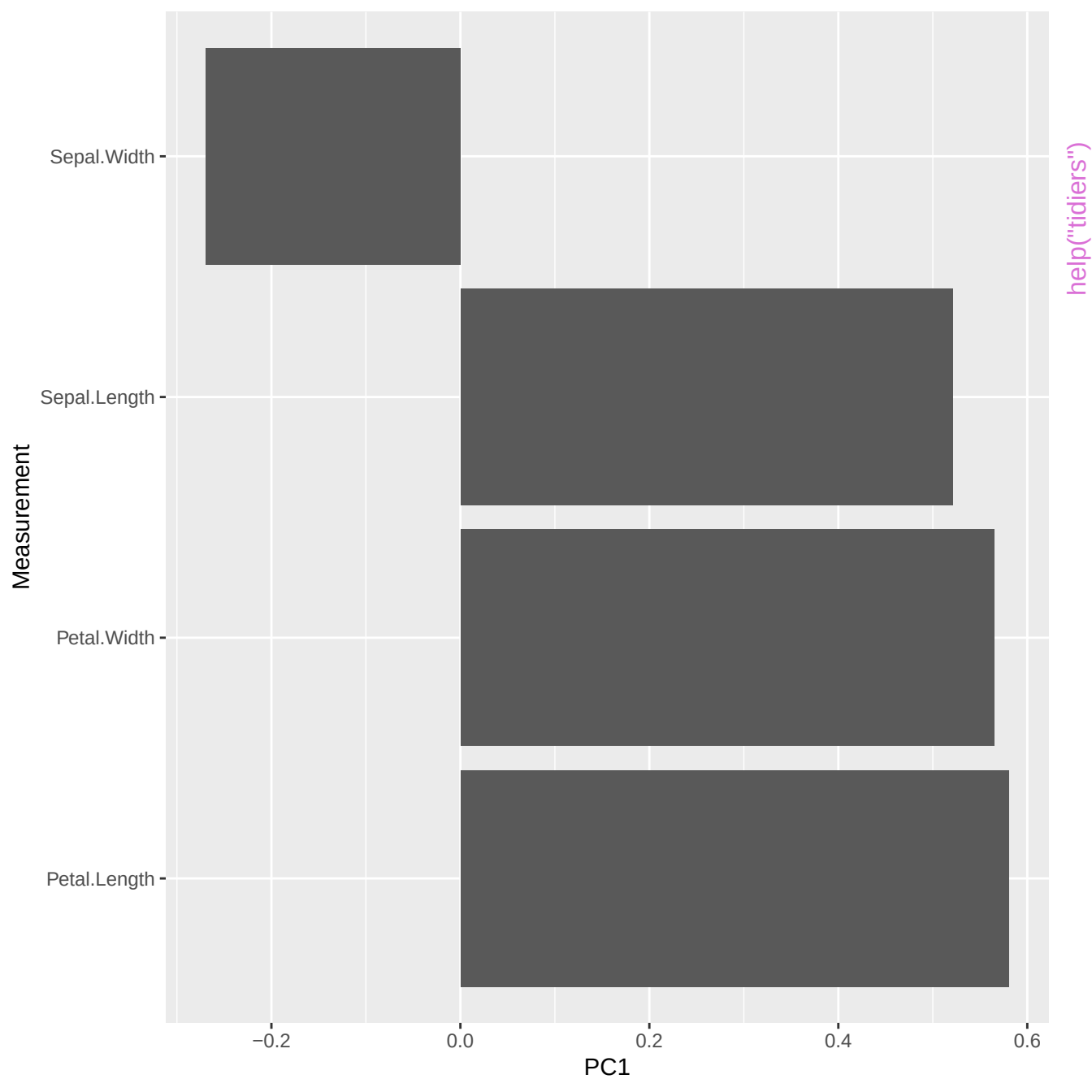


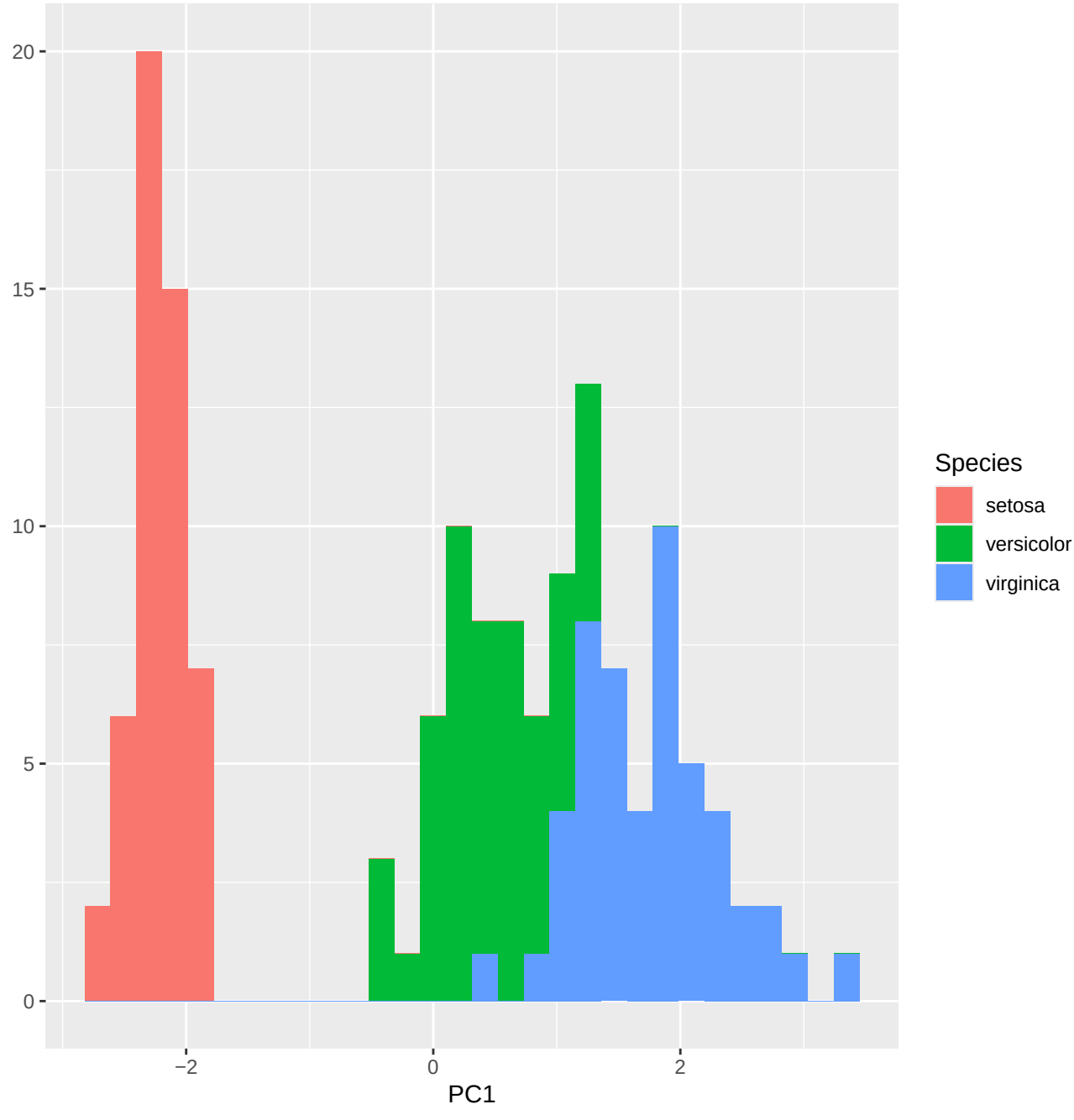
help("stat_cone")



help("stat_rows")


Proportion of variance
60%
40%
20%
0%
PC1
PC2
PC3
PC4
help("tidiers")


Sepal.Width
Sepal.Length
Petal.Width
Petal.Length
Measurement
−0.2
0.0
0.2
0.4
0.6
PC1
help("tidiers")


20
15
10
5
0
−2
0
2
PC1
Species
setosa
versicolor
virginica
help("tidiers")