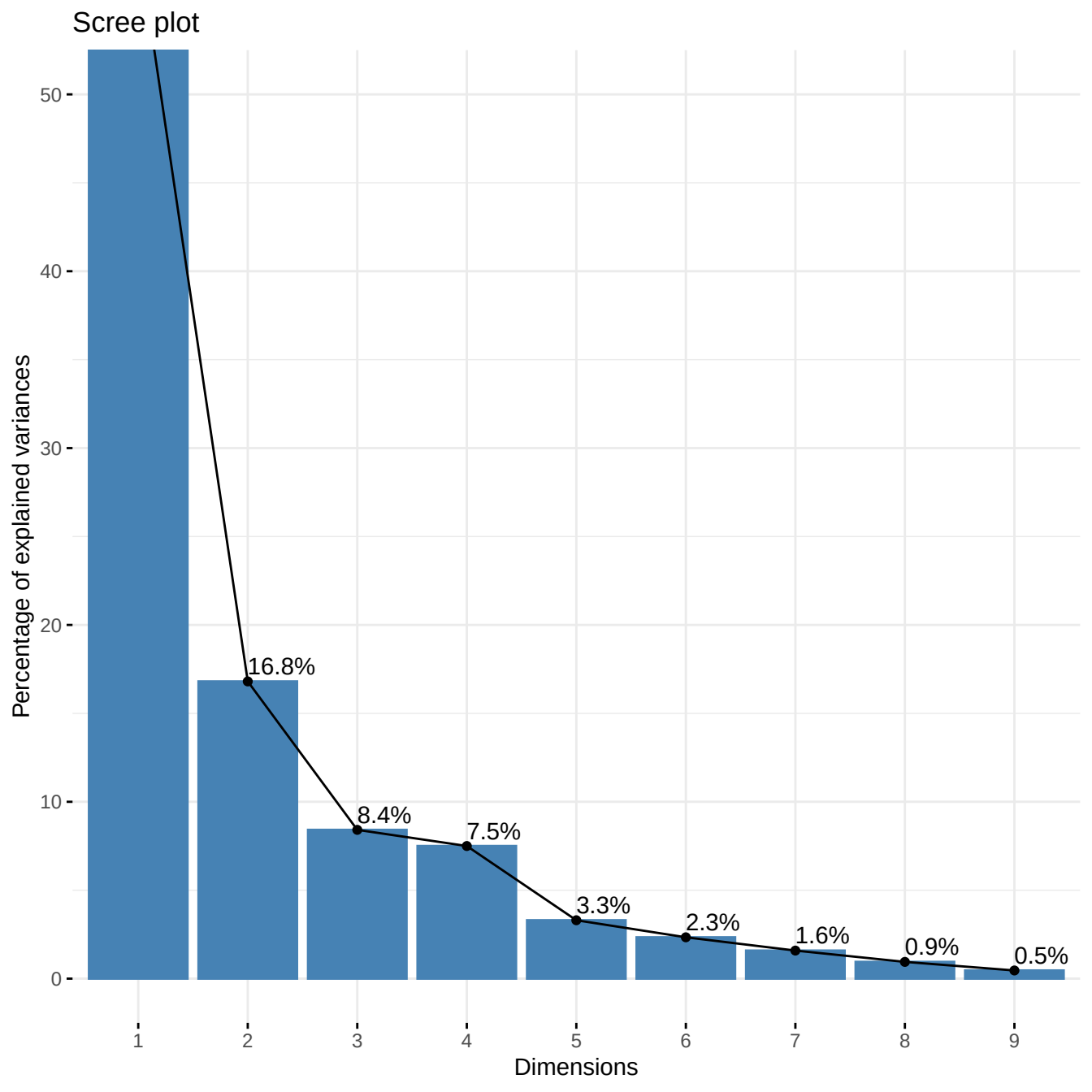
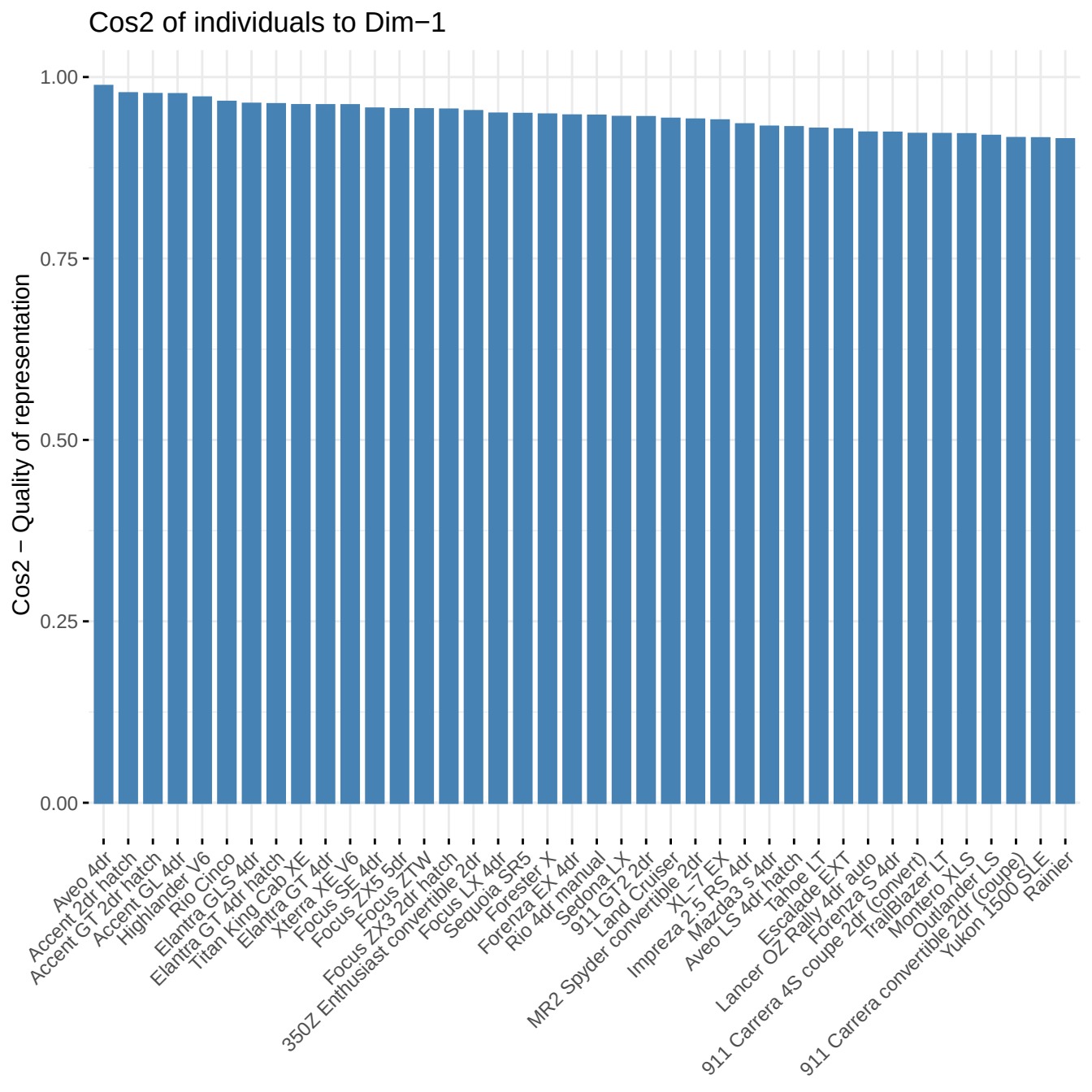
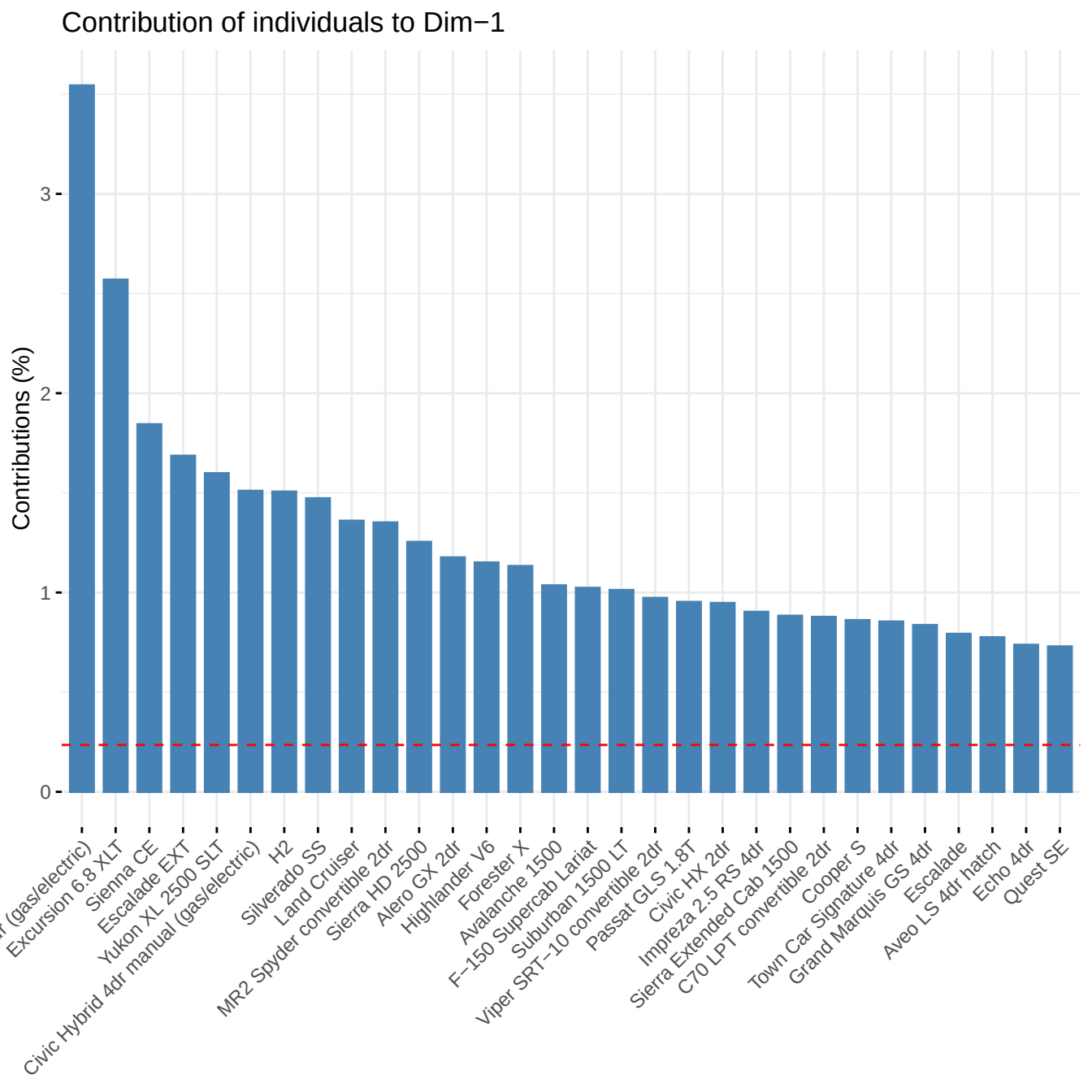
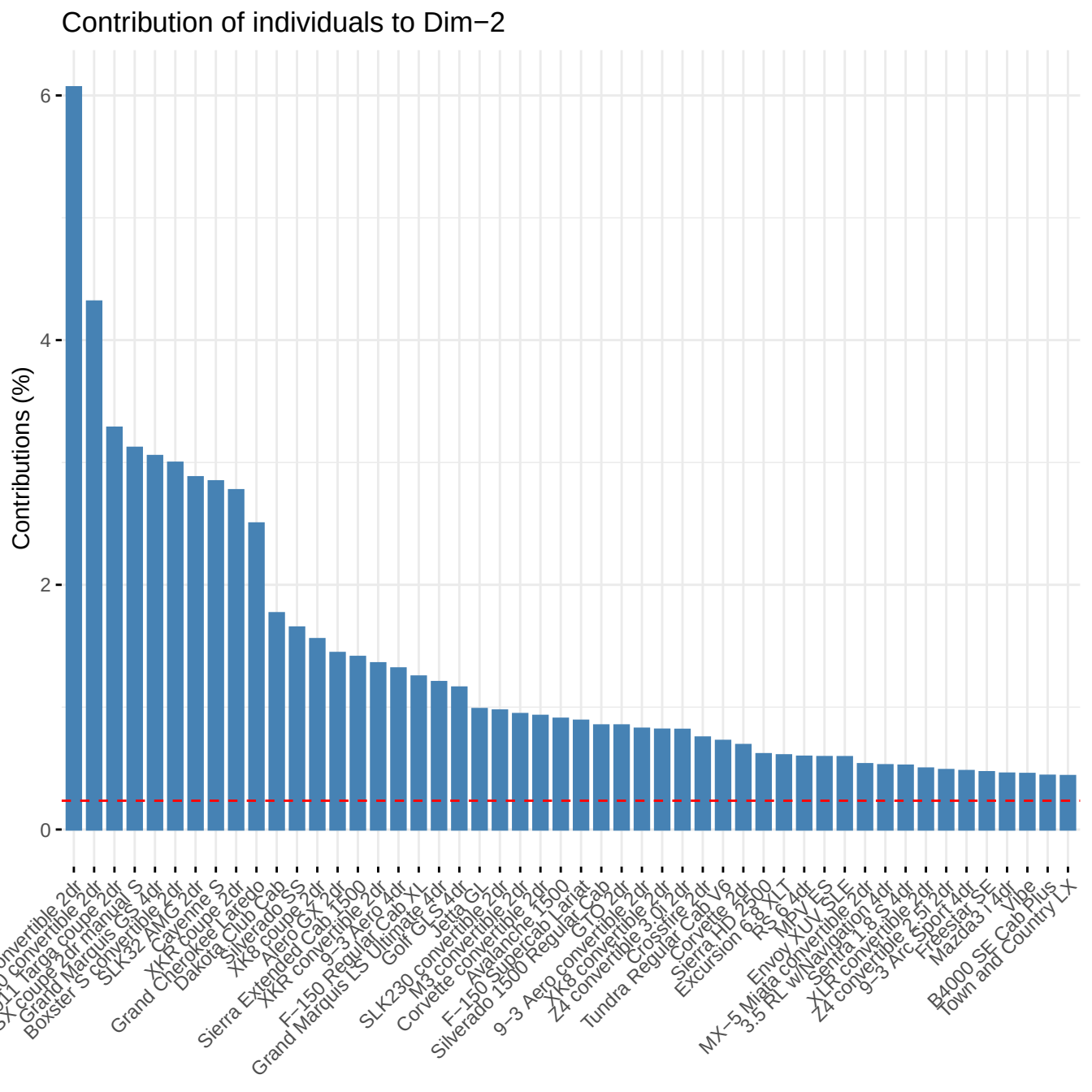
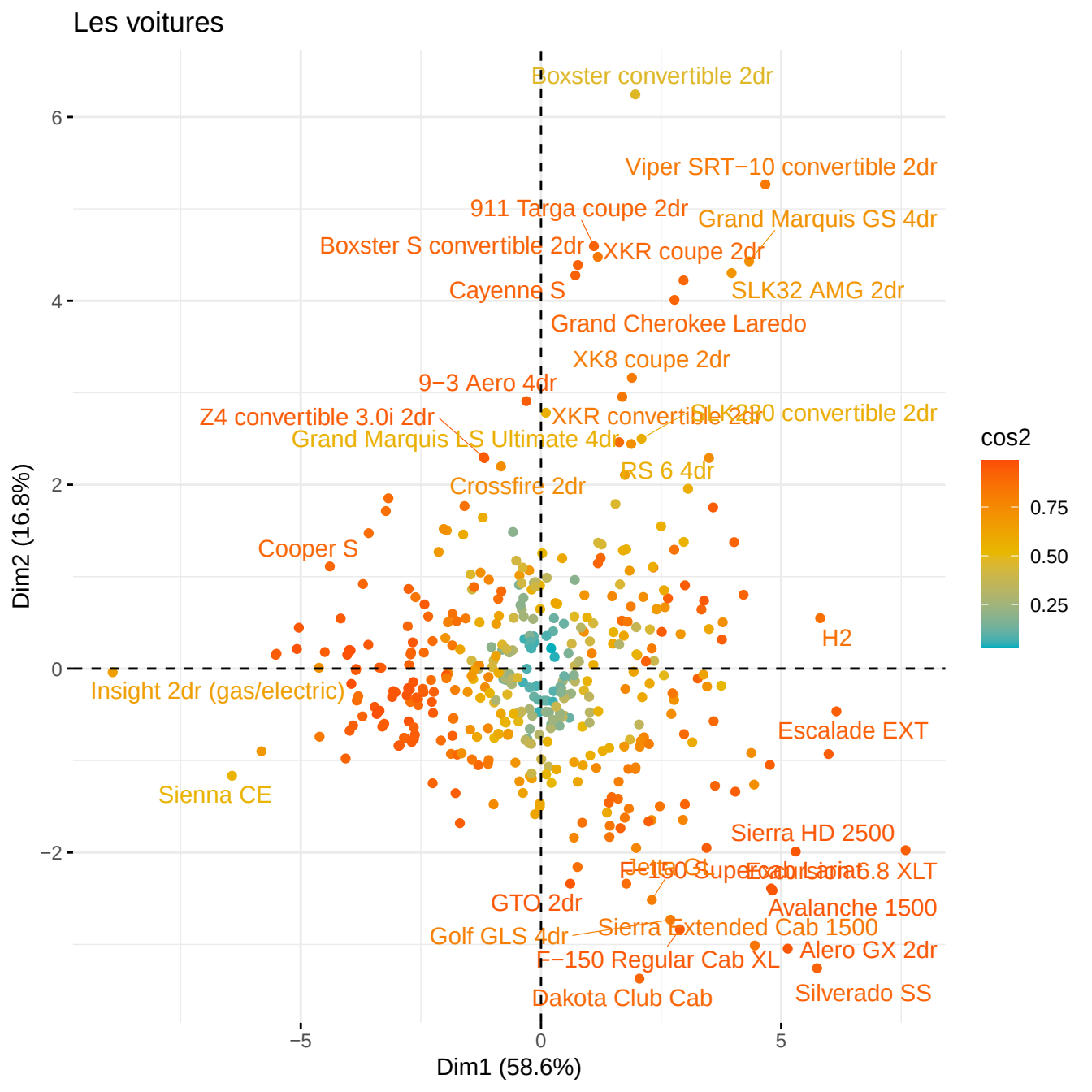
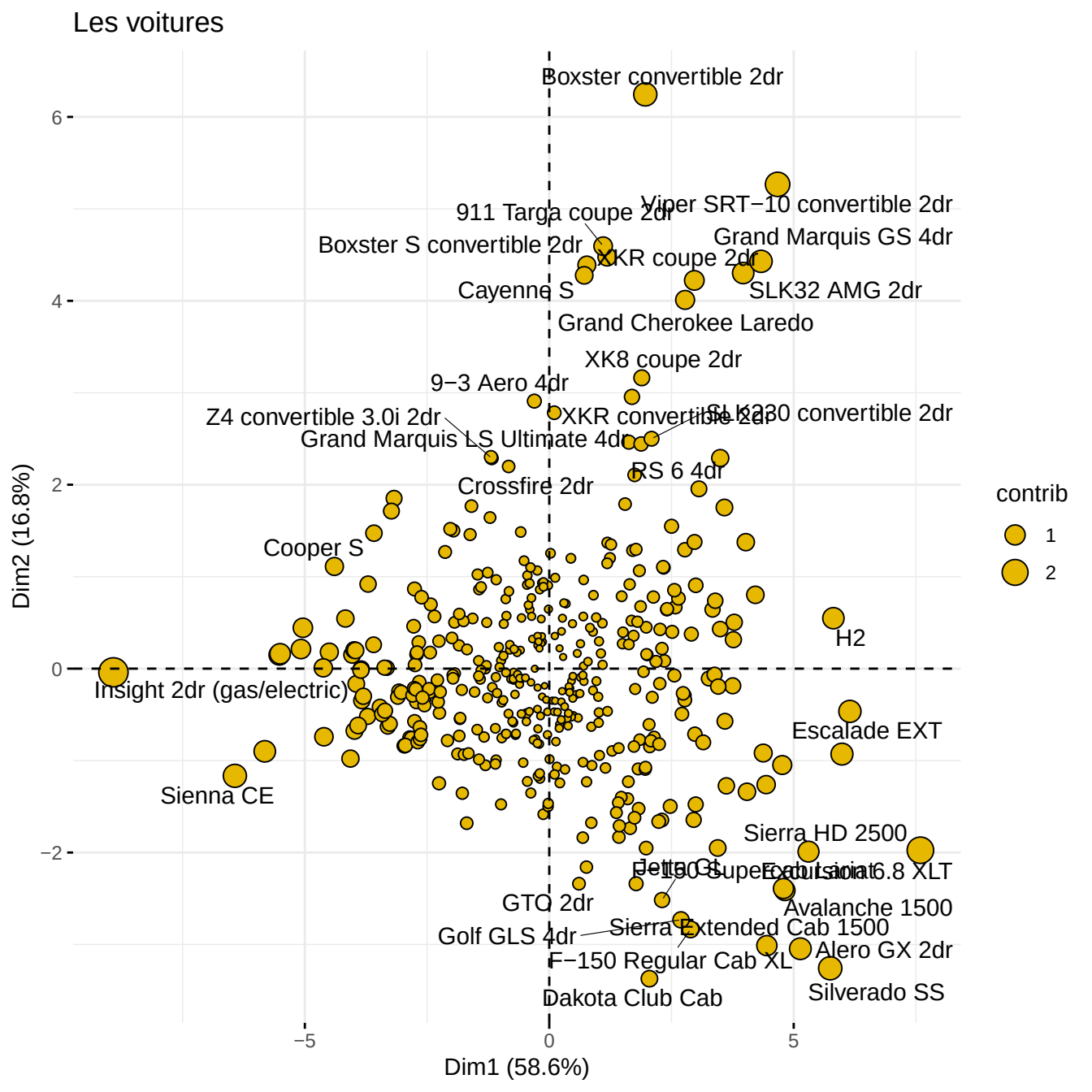

Scree plot
Percentage of explained variances
Dimensions
50
40
30
20
10
0
1
2
3
4
5
6
7
8
9
16.8%
8.4%
7.5%
3.3%
2.3%
1.6%
0.9%
0.5%

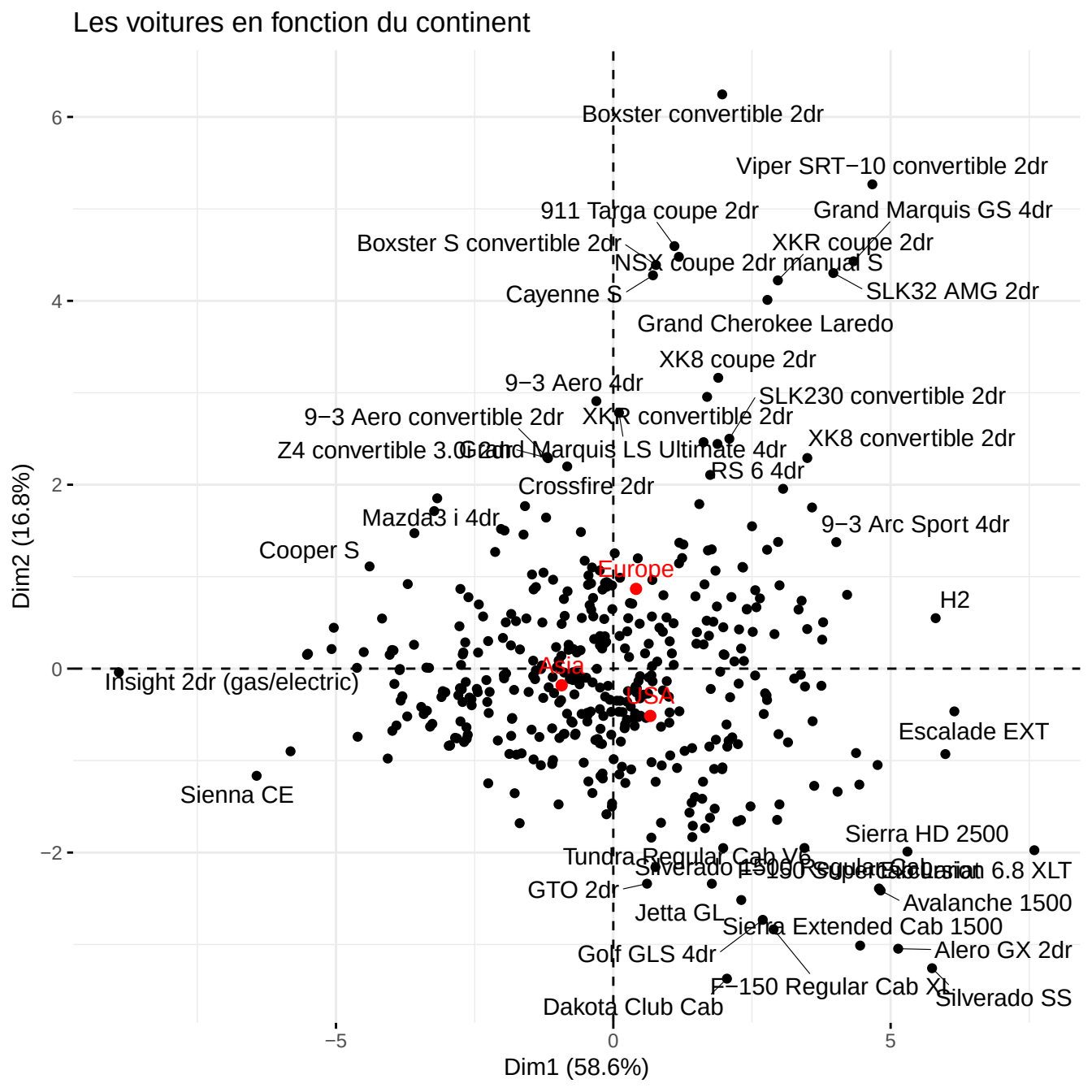

Cos2 of individuals to Dim−1
Cos2 – Quality of representation
1.00
0.75
0.50
0.25
0.00
Aveo 4dr
Accent 2dr hatch
Accent GT 2dr hatch
Accent GL 4dr
Highlander V6
Rio Cinco
Elantra GLS 4dr
Elantra GT 4dr hatch
Titan King Cab XE
Elantra GT 4dr
Xterra XE V6
Focus SE 4dr
Focus ZX5 5dr
Focus ZTW
Focus ZX3 2dr hatch
350Z Enthusiast convertible 2dr
Focus LX 4dr
Sequoia SR5
Forester X
Forenza EX 4dr
Rio 4dr manual
Sedona LX
911 GT2 2dr
Land Cruiser
MR2 Spyder convertible 2dr
XL–7 EX
Impreza 2.5 RS 4dr
Mazda3 s 4dr
Aveo LS 4dr hatch
Tahoe LT
Escalade EXT
Lancer OZ Rally 4dr auto
Forenza S 4dr
911 Carrera 4S coupe 2dr (convert)
TrailBlazer LT
Montero XLS
Outlander LS
911 Carrera convertible 2dr (coupe)
Yukon 1500 SLE
Rainier

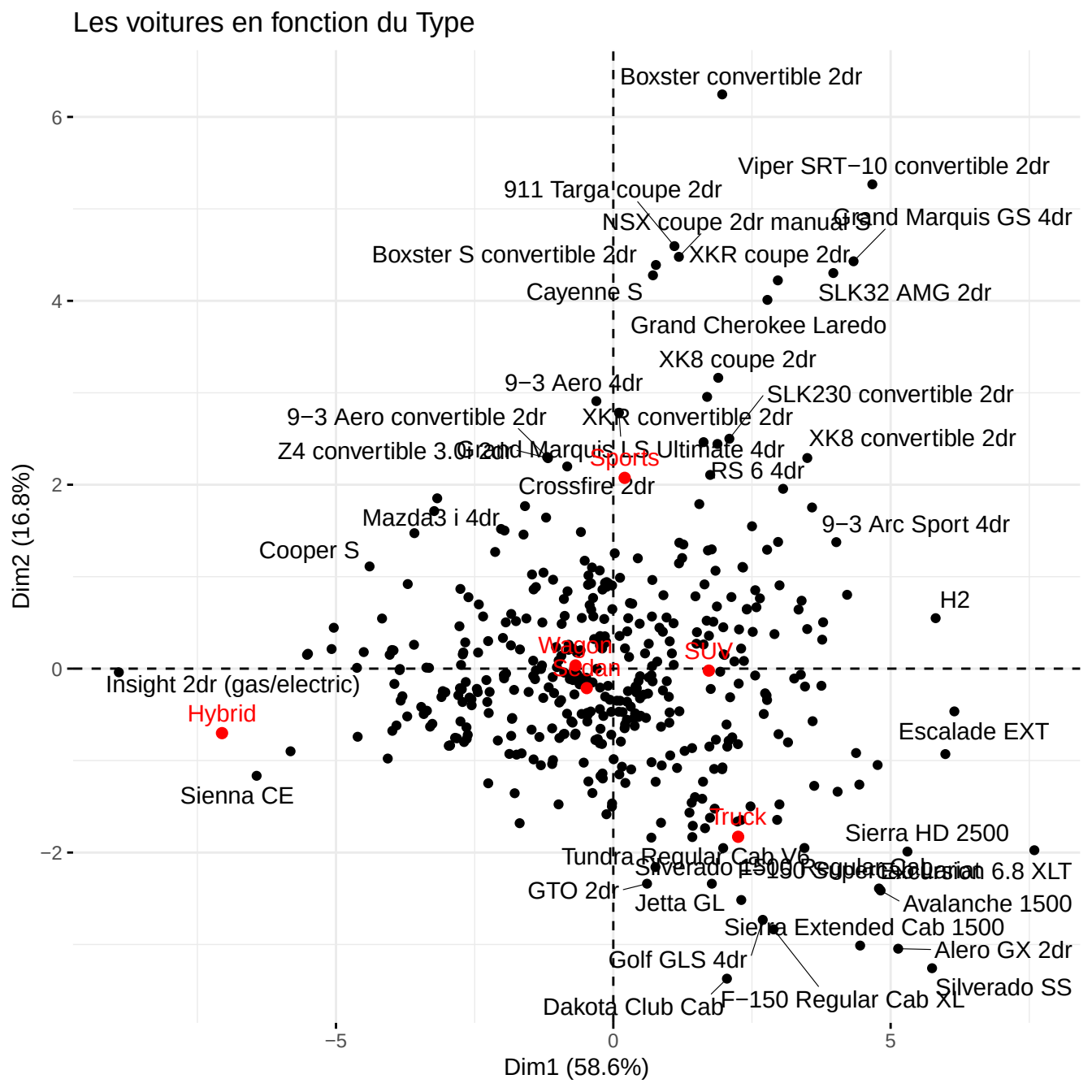

Contribution of individuals to Dim−1
Contributions (%)
0
1
2
3
r (gas/electric)
Excursion 6.8 XLT
Sienna CE
Escalade EXT
Yukon XL 2500 SLT
Civic Hybrid 4dr manual (gas/electric)
H2
Silverado SS
Land Cruiser
MR2 Spyder convertible 2dr
Sierra HD 2500
Alero GX 2dr
Highlander V6
Forester X
Avalanche 1500
F−150 Supercab Lariat
Suburban 1500 LT
Viper SRT−10 convertible 2dr
Passat GLS 1.8T
Civic HX 2dr
Impreza 2.5 RS 4dr
Sierra Extended Cab 1500
C70 LPT convertible 2dr
Cooper S
Town Car Signature 4dr
Grand Marquis GS 4dr
Escalade
Aveo LS 4dr hatch
Echo 4dr
Quest SE

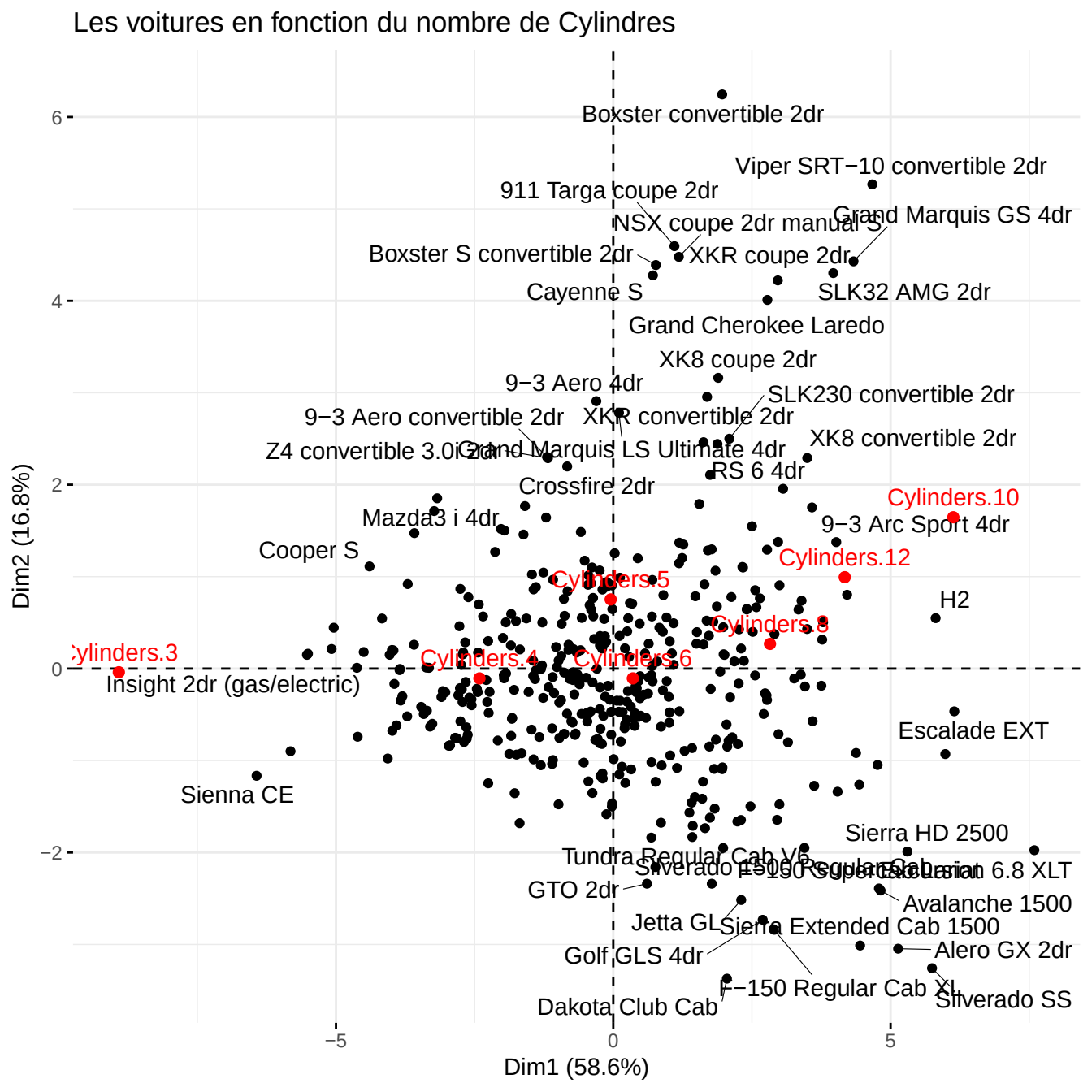

Contribution of individuals to Dim−2
Contributions (%)
6
4
2
0
Boxster S convertible 2dr
Grand Marquis GS 4dr
SLK32 AMG 2dr
XKR coupe 2dr
Cayenne S
Grand Cherokee Laredo
Dakota Club Cab
Silverado SS
XK8 coupe 2dr
Aero GX 2dr
Sierra Extended Cab 1500
XKR convertible 2dr
9−3 Aero 4dr
F−150 Regular Cab XL
Grand Marquis LS Ultimate 4dr
Golf GLS 4dr
Jetta GL
SLK230 convertible 2dr
M3 convertible 2dr
Corvette convertible 2dr
F−150 Supercab 1500
Avalanche 1500
Silverado 1500 Regular Cab
GTO 2dr
9−3 Aero convertible 2dr
XK8 convertible 2dr
Z4 convertible 3.0i 2dr
Tundra Regular Cab V6
Crossfire 2dr
Corvette 2dr
Sierra HD 2500
Excursion 6.8 XLT
RS 6 4dr
MPV ES
Envoy XUV SLE
Miata convertible 2dr
MX−5 3.5 RL w/Navigation 4dr
Sentra 1.8 S 4dr
XLR convertible 2dr
Z4 convertible 2.5i 2dr
9−3 Arc Sport 4dr
Freestar SE
Mazda3 i 4dr
Vibe
B4000 SE Cab Plus
Town and Country LX

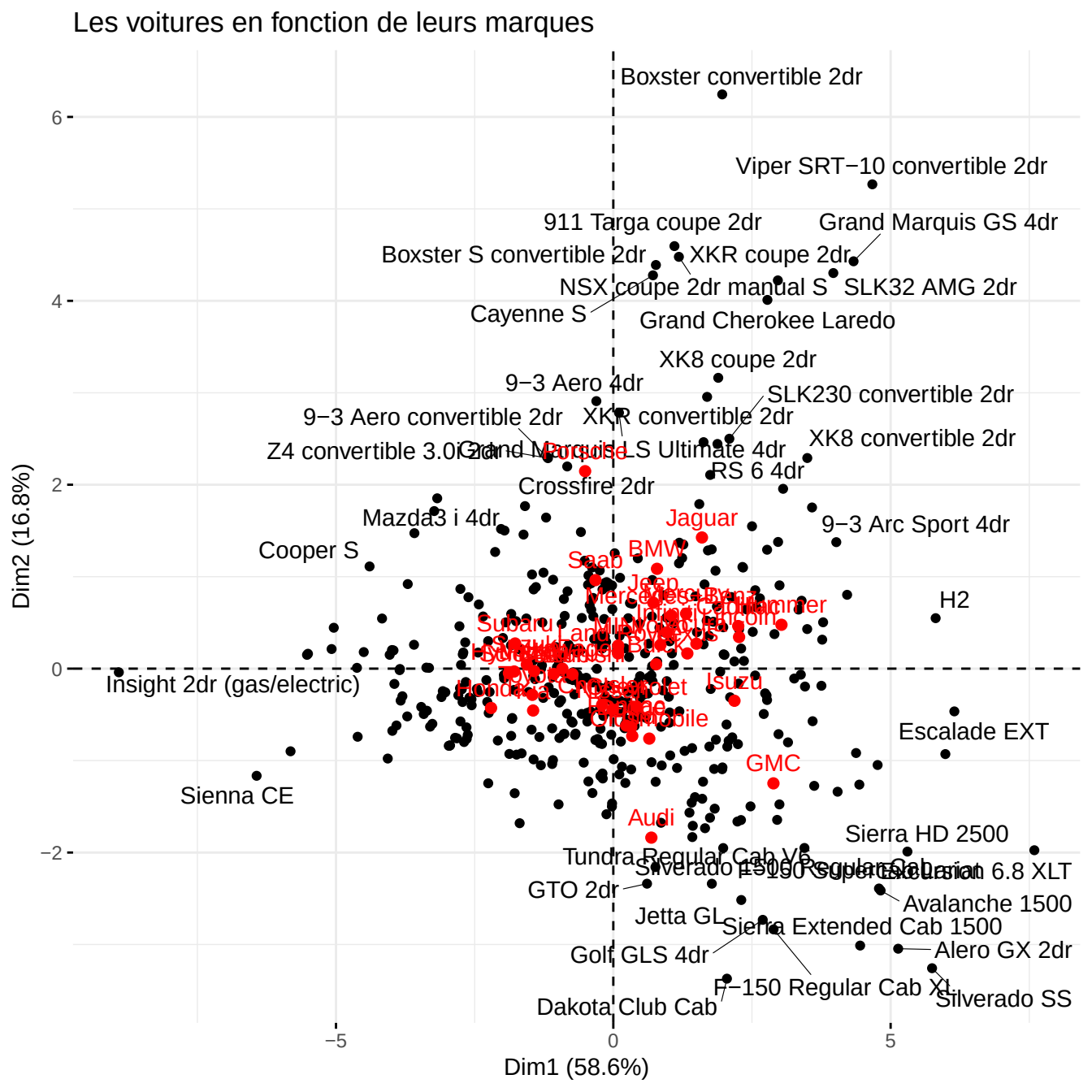

Les voitures
Boxster convertible 2dr
Viper SRT−10 convertible 2dr
911 Targa coupe 2dr
Grand Marquis GS 4dr
Boxster S convertible 2dr
XKR coupe 2dr
Cayenne S
SLK32 AMG 2dr
Grand Cherokee Laredo
XK8 coupe 2dr
9−3 Aero 4dr
Z4 convertible 3.0i 2dr
XKR convertible 2dr
SLK280 convertible 2dr
Grand Marquis LS Ultimate 4dr
RS 6 4dr
Crossfire 2dr
Cooper S
H2
Insight 2dr (gas/electric)
Escalade EXT
Sienna CE
Sierra HD 2500
Jetta GL
F−150 SuperCrew Lariat
Excursion 6.8 XLT
GTO 2dr
Avalanche 1500
Golf GLS 4dr
Sierra Extended Cab 1500
Alero GX 2dr
F−150 Regular Cab XL
Silverado SS
Dakota Club Cab
Dim1 (58.6%)
Dim2 (16.8%)
cos2
0.75
0.50
0.25
6
4
2
0
−2
−5
0
5

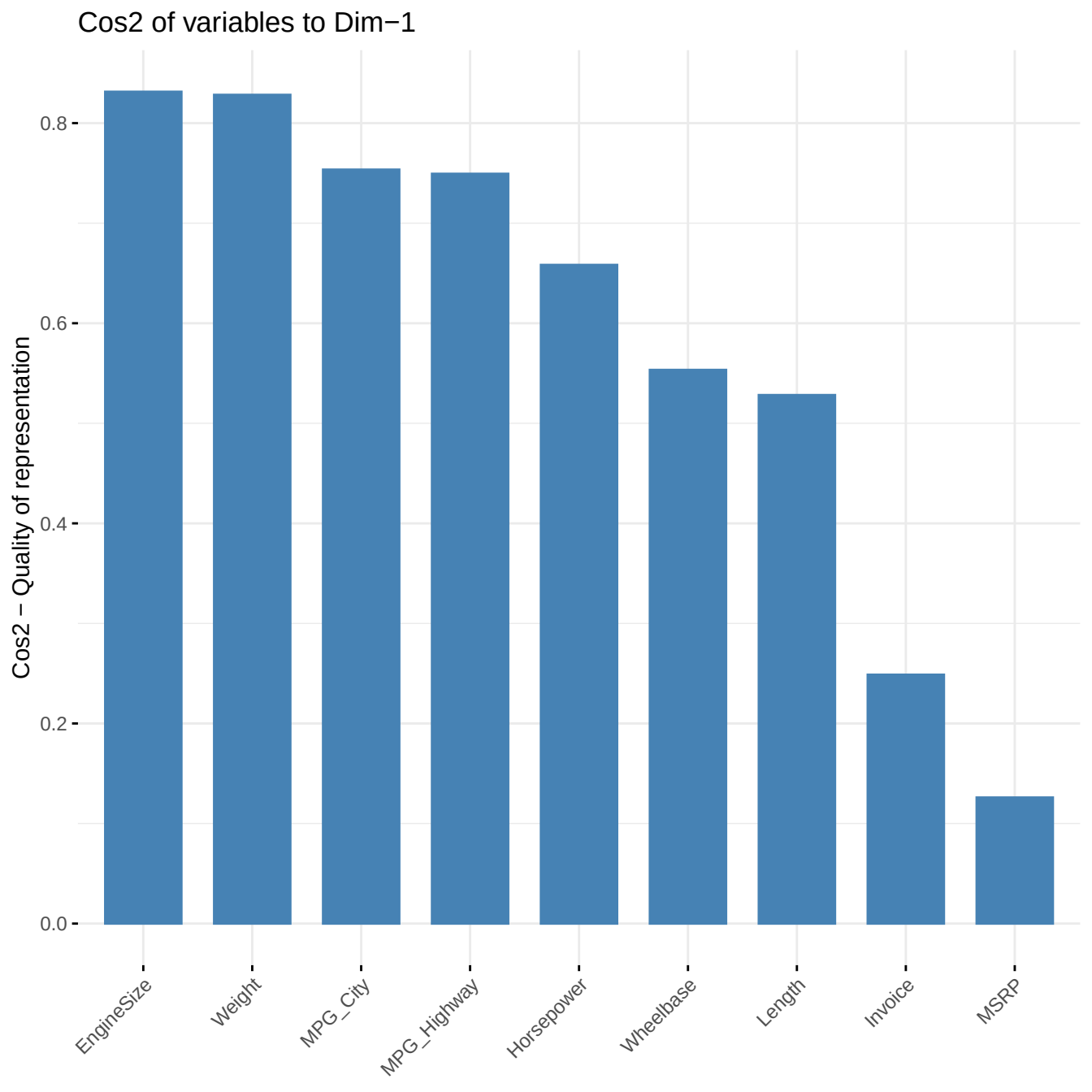

Les voitures
Boxster convertible 2dr
Viper SRT−10 convertible 2dr
911 Targa coupe 2dr
Boxster S convertible 2dr
Grand Marquis GS 4dr
XKR coupe 2dr
Cayenne S
SLK32 AMG 2dr
Grand Cherokee Laredo
XK8 coupe 2dr
9−3 Aero 4dr
Z4 convertible 3.0i 2dr
XKR convertible 2dr
SLK230 convertible 2dr
Grand Marquis LS Ultimate 4dr
RS 6 4dr
Crossfire 2dr
Cooper S
H2
Insight 2dr (gas/electric)
Escalade EXT
Sienna CE
Sierra HD 2500
Jetta GL
Expedition 5.4 XLT
GTO 2dr
Avalanche 1500
Golf GLS 4dr
Sierra Extended Cab 1500
Alero GX 2dr
F−150 Regular Cab XL
Silverado SS
Dakota Club Cab
Dim1 (58.6%)
Dim2 (16.8%)
contrib
1
2
6
4
2
0
−2
−5
0
5

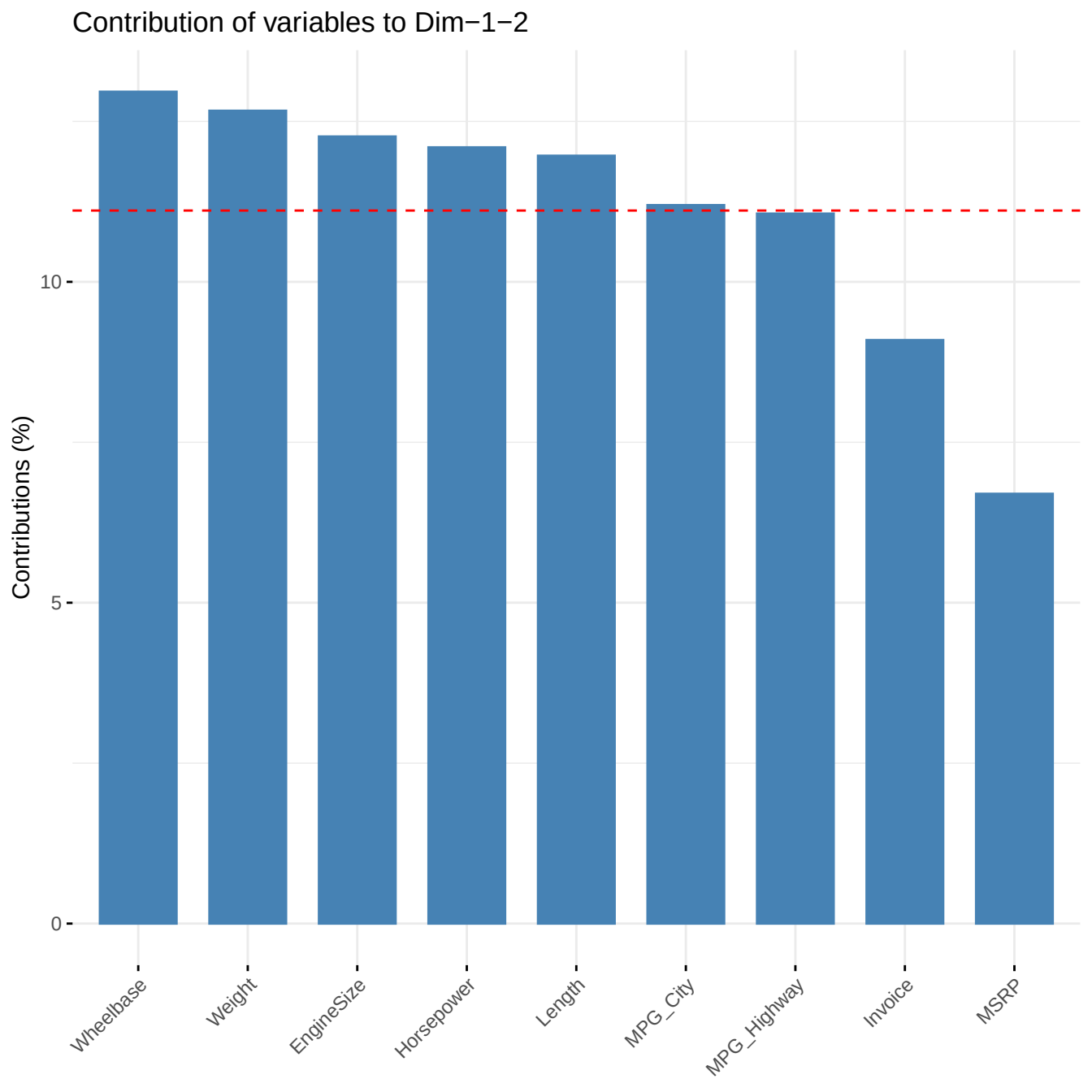

Les voitures en fonction du continent
Boxster convertible 2dr
Viper SRT−10 convertible 2dr
911 Targa coupe 2dr
Grand Marquis GS 4dr
Boxster S convertible 2dr
XKR coupe 2dr
NSX coupe 2dr manual S
Cayenne S
SLK32 AMG 2dr
Grand Cherokee Laredo
XK8 coupe 2dr
9−3 Aero 4dr
SLK230 convertible 2dr
9−3 Aero convertible 2dr
XKR convertible 2dr
Z4 convertible 3.0 2dr
Grand Marquis LS Ultimate 4dr
XK8 convertible 2dr
RS 6 4dr
Crossfire 2dr
Mazda3 i 4dr
9−3 Arc Sport 4dr
Cooper S
Europe
H2
Asia
Insight 2dr (gas/electric)
USA
Escalade EXT
Sienna CE
Sierra HD 2500
Tundra Regular Cab V6
Silverado 1500 Extended Cab
GTO 2dr
Avalanche 1500
Jetta GL
Sierra Extended Cab 1500
Alero GX 2dr
Golf GLS 4dr
F−150 Regular Cab XL
Silverado SS
Dakota Club Cab
6
4
2
0
−2
−5
0
5
Dim2 (16.8%)
Dim1 (58.6%)

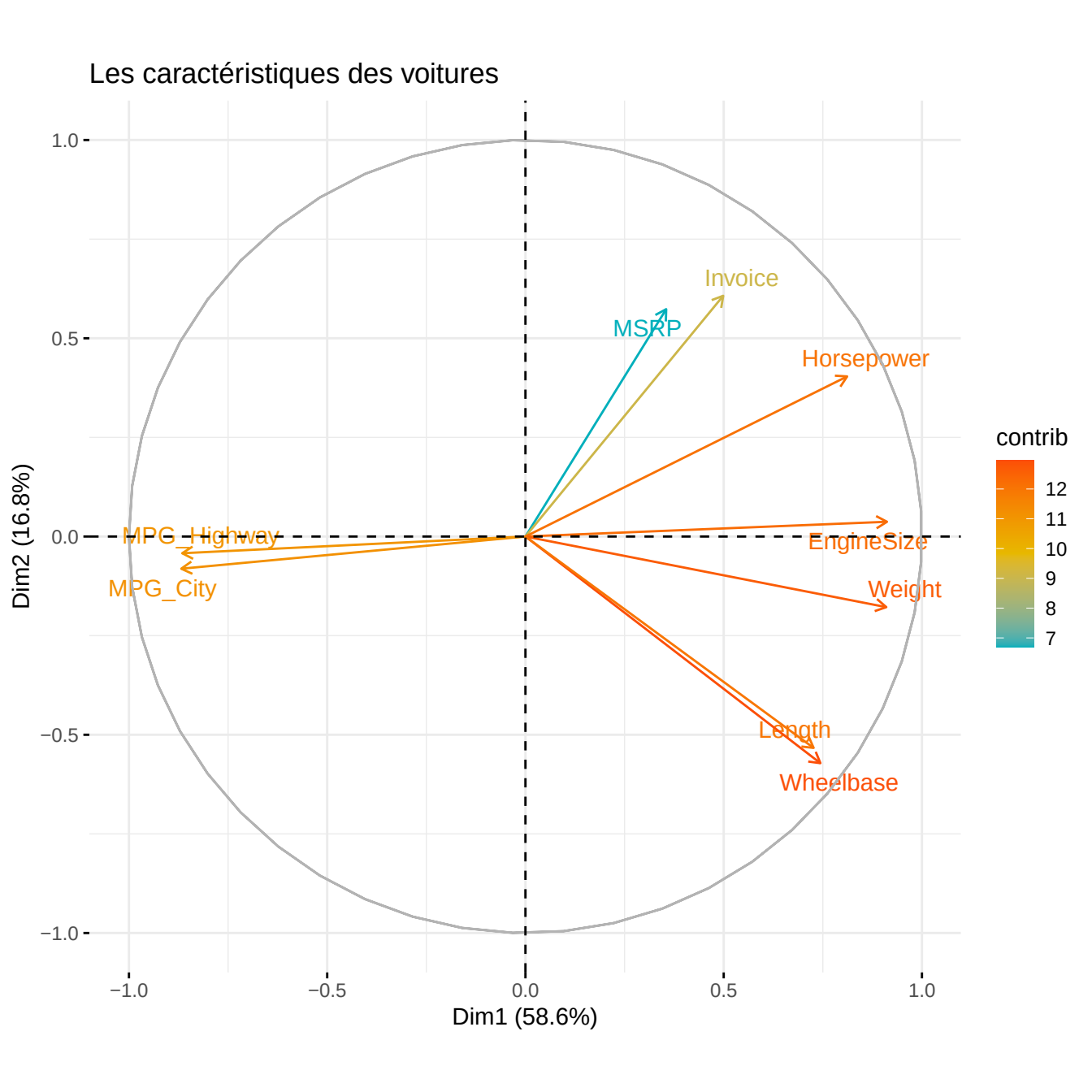

Les voitures en fonction du Type
Boxster convertible 2dr
Viper SRT−10 convertible 2dr
911 Targa coupe 2dr
NSX coupe 2dr manual S
Grand Marquis GS 4dr
Boxster S convertible 2dr
XKR coupe 2dr
Cayenne S
SLK32 AMG 2dr
Grand Cherokee Laredo
XK8 coupe 2dr
9−3 Aero 4dr
SLK230 convertible 2dr
9−3 Aero convertible 2dr
XKR convertible 2dr
XK8 convertible 2dr
Z4 convertible 3.0 2dr
Grand Marquis LS Ultimate 4dr
Sports
RS 6 4dr
Crossfire 2dr
Mazda3 i 4dr
9−3 Arc Sport 4dr
Cooper S
H2
Wagon
SUV
Sedan
Insight 2dr (gas/electric)
Hybrid
Escalade EXT
Sienna CE
Truck
Sierra HD 2500
Tundra Regular Cab V6
Silverado 1500 Regular Cab
Sierra 6.8 XLT
GTO 2dr
Jetta GL
Avalanche 1500
Sierra Extended Cab 1500
Alero GX 2dr
Golf GLS 4dr
Silverado SS
Dakota Club Cab
F−150 Regular Cab XL
6
4
2
0
−2
−5
0
5
Dim2 (16.8%)
Dim1 (58.6%)

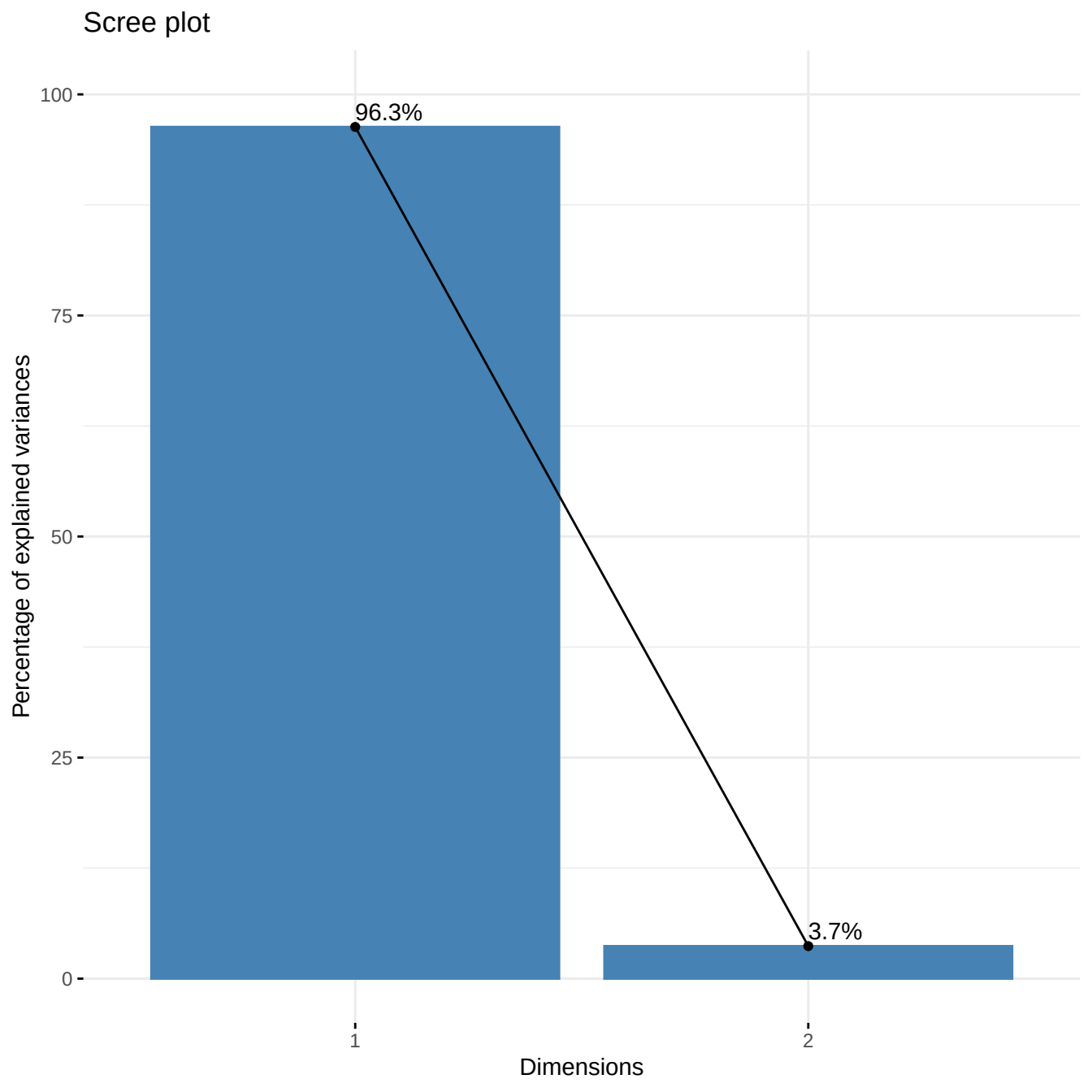

Les voitures en fonction du nombre de Cylindres
Boxster convertible 2dr
Viper SRT−10 convertible 2dr
911 Targa coupe 2dr
Grand Marquis GS 4dr
NSX coupe 2dr manual S
Boxster S convertible 2dr
XKR coupe 2dr
Cayenne S
SLK32 AMG 2dr
Grand Cherokee Laredo
XK8 coupe 2dr
9−3 Aero 4dr
SLK230 convertible 2dr
9−3 Aero convertible 2dr
XKR convertible 2dr
XK8 convertible 2dr
Z4 convertible 3.0i 2dr
Grand Marquis LS Ultimate 4dr
RS 6 4dr
Crossfire 2dr
Cylinders.10
Mazda3 i 4dr
9−3 Arc Sport 4dr
Cooper S
Cylinders.12
Cylinders.5
H2
Cylinders.8
Cylinders.3
Cylinders.4
Cylinders.6
Insight 2dr (gas/electric)
Escalade EXT
Sienna CE
Sierra HD 2500
Tundra Regular Cab V6
Silverado 1500 Extended Cab
Sierra 1500 Regular Cab
GTO 2dr
Avalanche 1500
Jetta GL
Sierra Extended Cab 1500
Golf GLS 4dr
Alero GX 2dr
F−150 Regular Cab XL
Dakota Club Cab
Silverado SS
6
4
2
0
−2
−5
0
5
Dim2 (16.8%)
Dim1 (58.6%)

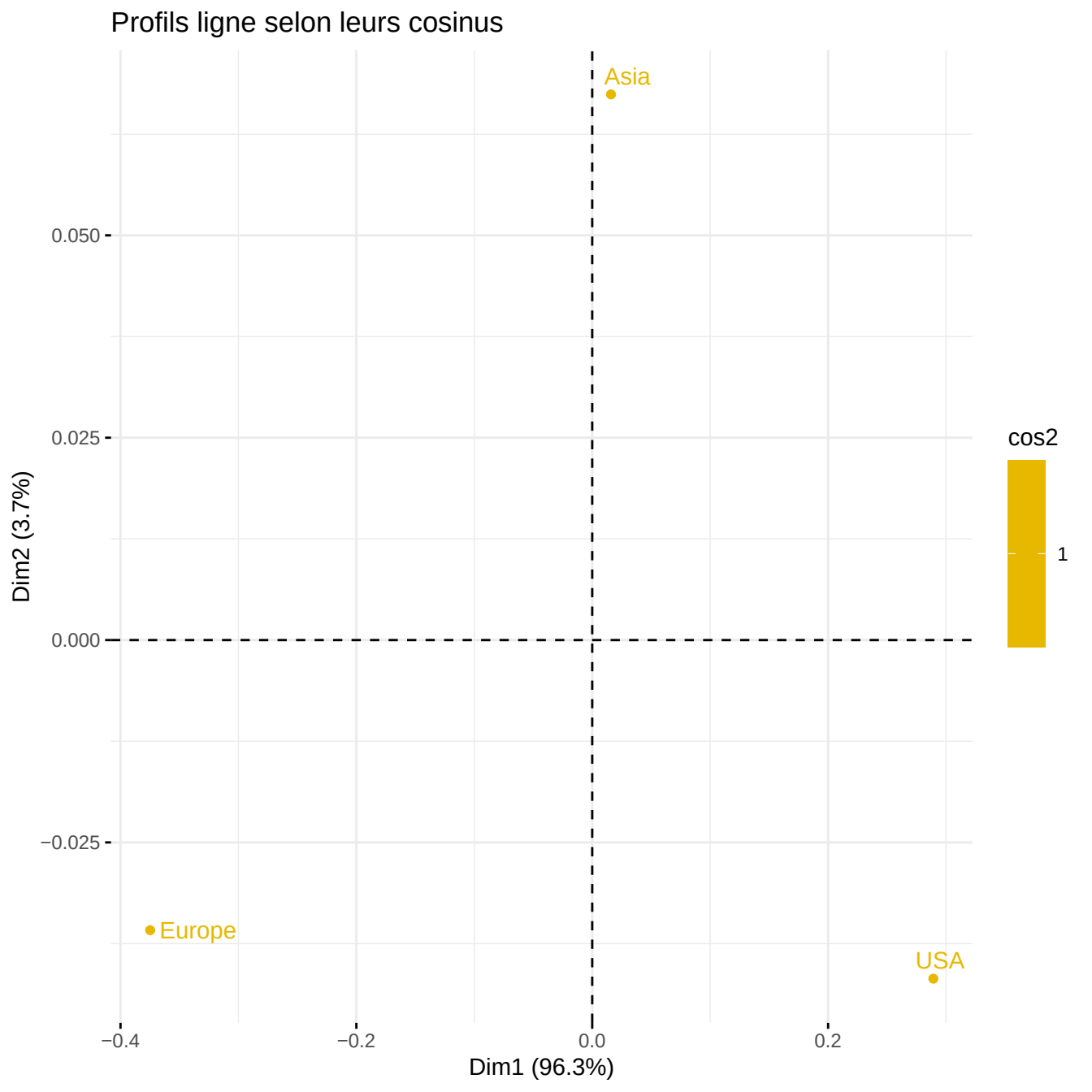

Les voitures en fonction de leurs marques
Boxster convertible 2dr
Viper SRT−10 convertible 2dr
911 Targa coupe 2dr
Grand Marquis GS 4dr
Boxster S convertible 2dr
XKR coupe 2dr
NSX coupe 2dr manual S
SLK32 AMG 2dr
Cayenne S
Grand Cherokee Laredo
XK8 coupe 2dr
9−3 Aero 4dr
SLK230 convertible 2dr
9−3 Aero convertible 2dr
XKR convertible 2dr
Z4 convertible 3.0i 2dr
Grand Marquis LS Ultimate 4dr
XK8 convertible 2dr
RS 6 4dr
Crossfire 2dr
Mazda3 i 4dr
Jaguar
9−3 Arc Sport 4dr
Cooper S
BMW
Saab
H2
Insight 2dr (gas/electric)
Isuzu
Escalade EXT
GMC
Sienna CE
Audi
Sierra HD 2500
GTO 2dr
Avalanche 1500
Jetta GL
Sierra Extended Cab 1500
Alero GX 2dr
Golf GLS 4dr
F−150 Regular Cab XL
Silverado SS
Dakota Club Cab
Dim1 (58.6%)
Dim2 (16.8%)
6
4
2
0
−2
−5
0
5

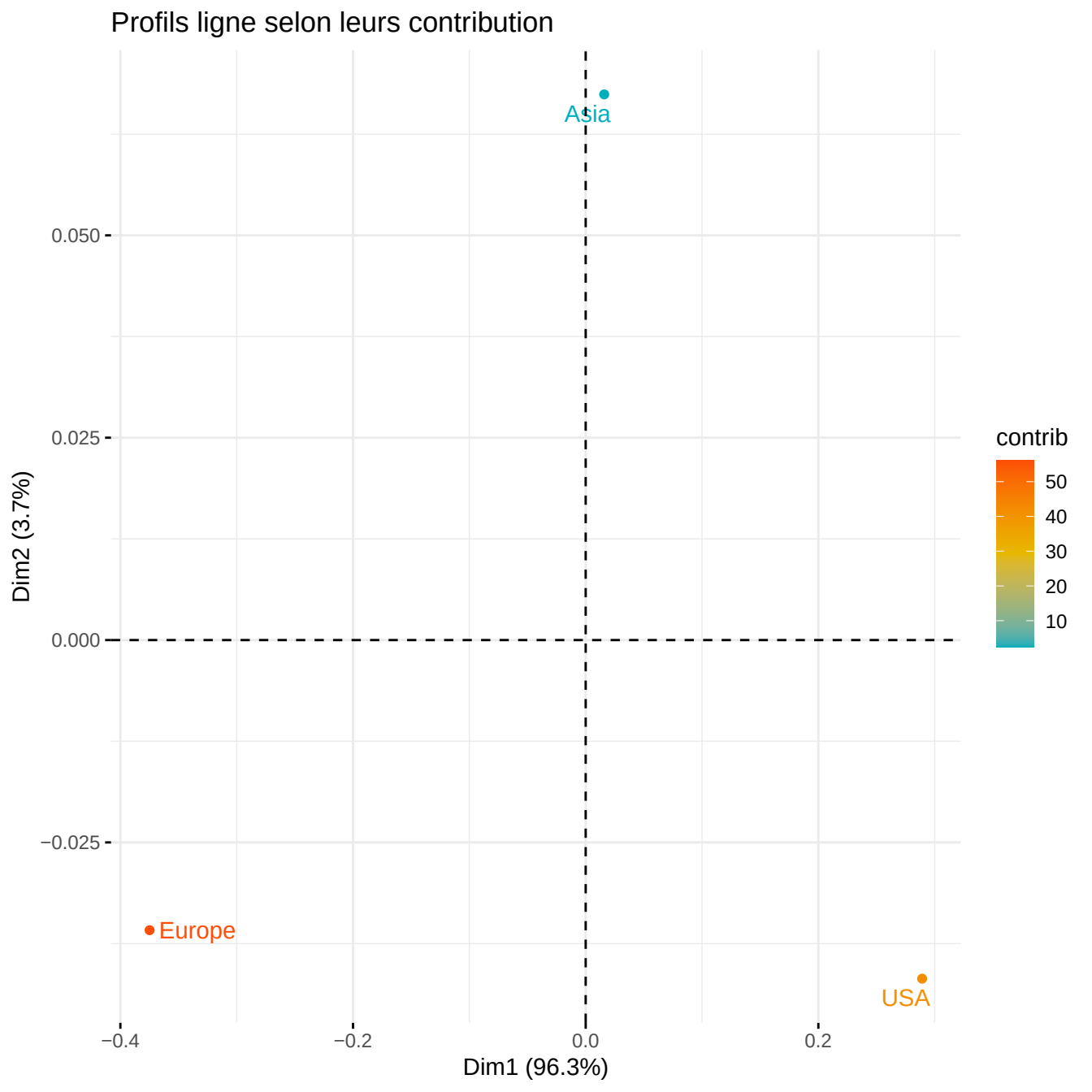

Cos2 of variables to Dim−1
Cos2 – Quality of representation
0.0
0.2
0.4
0.6
0.8
EngineSize
Weight
MPG_City
MPG_Highway
Horsepower
Wheelbase
Length
Invoice
MSRP

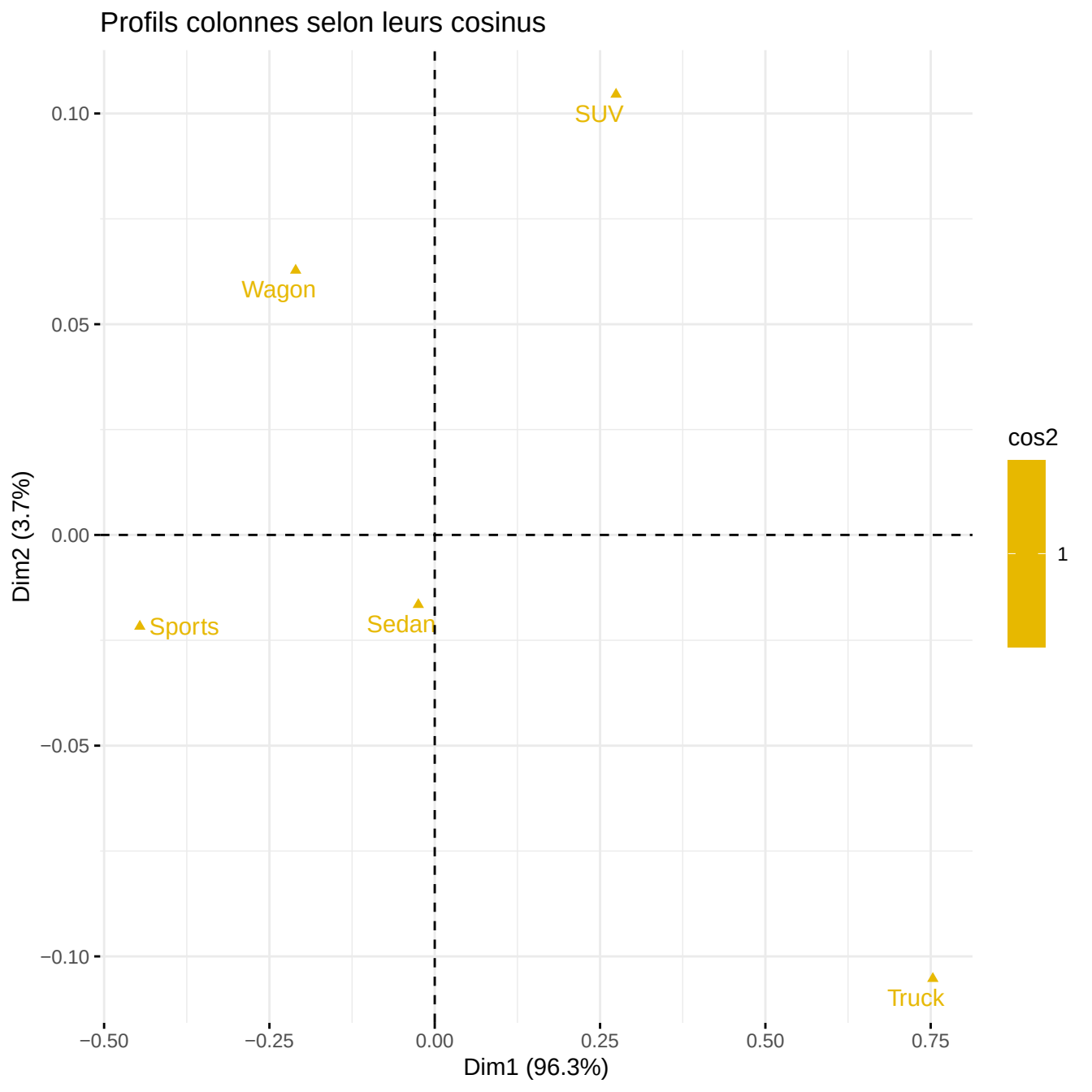

Contribution of variables to Dim−1−2
Contributions (%)
10
5
0
Wheelbase
Weight
EngineSize
Horsepower
Length
MPG_City
MPG_Highway
Invoice
MSRP

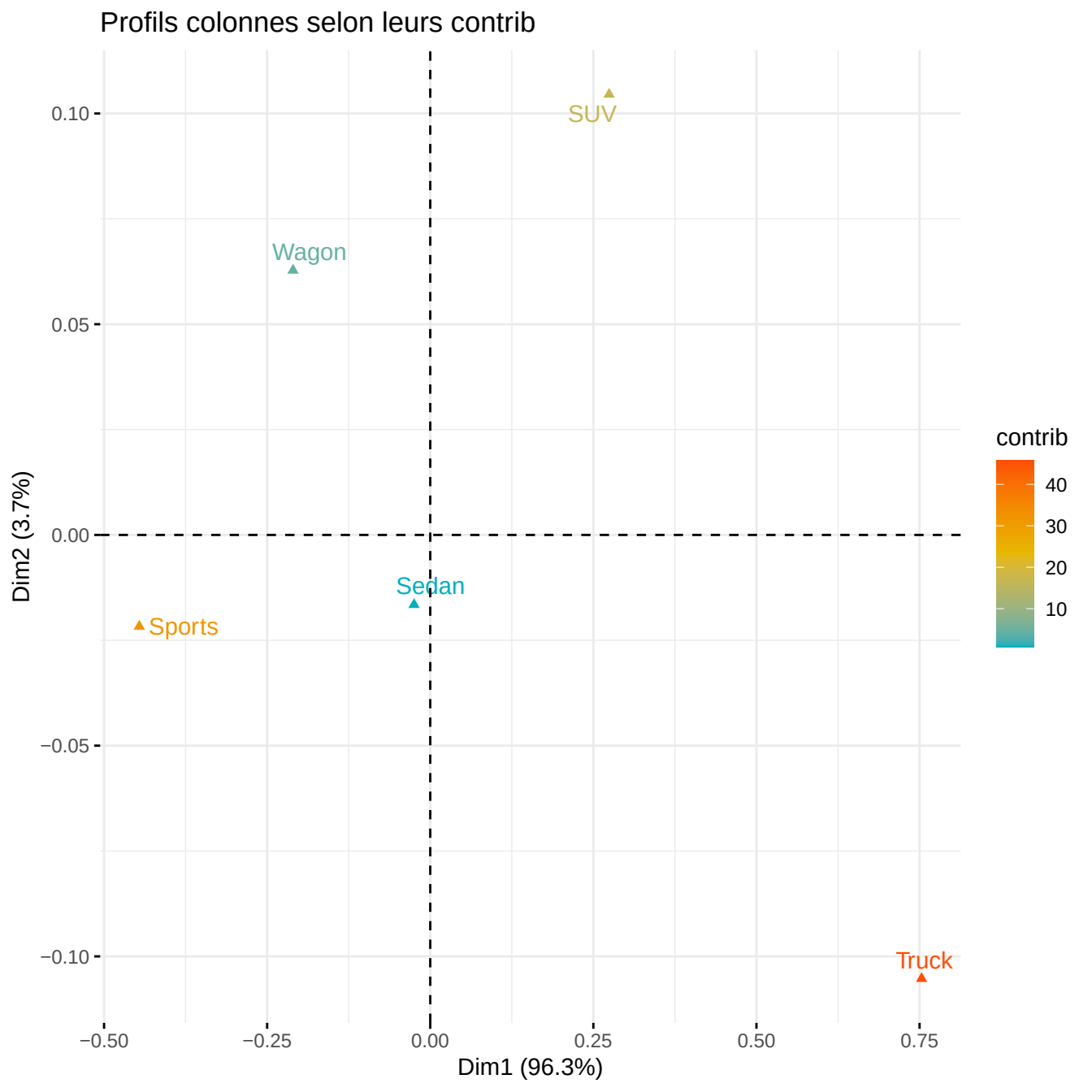

Les caractéristiques des voitures
Invoice
MSRP
Horsepower
MPG_Highway
MPG_City
EngineSize
Weight
Length
Wheelbase
contrib
12
11
10
9
8
7
1.0
0.5
0.0
−0.5
−1.0
Dim2 (16.8%)
Dim1 (58.6%)

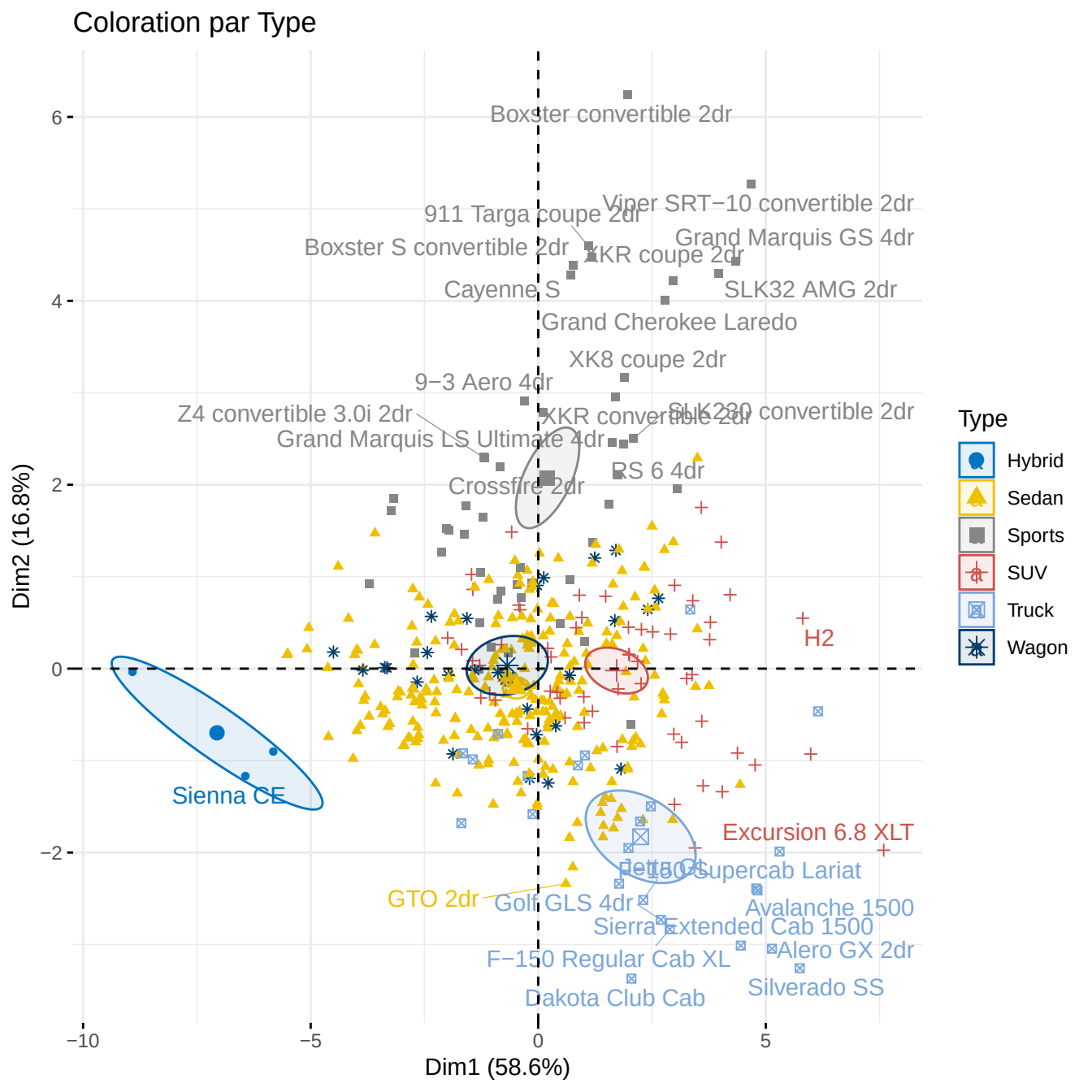

Scree plot
100
75
50
25
0
96.3%
3.7%
Percentage of explained variances
1
2
Dimensions

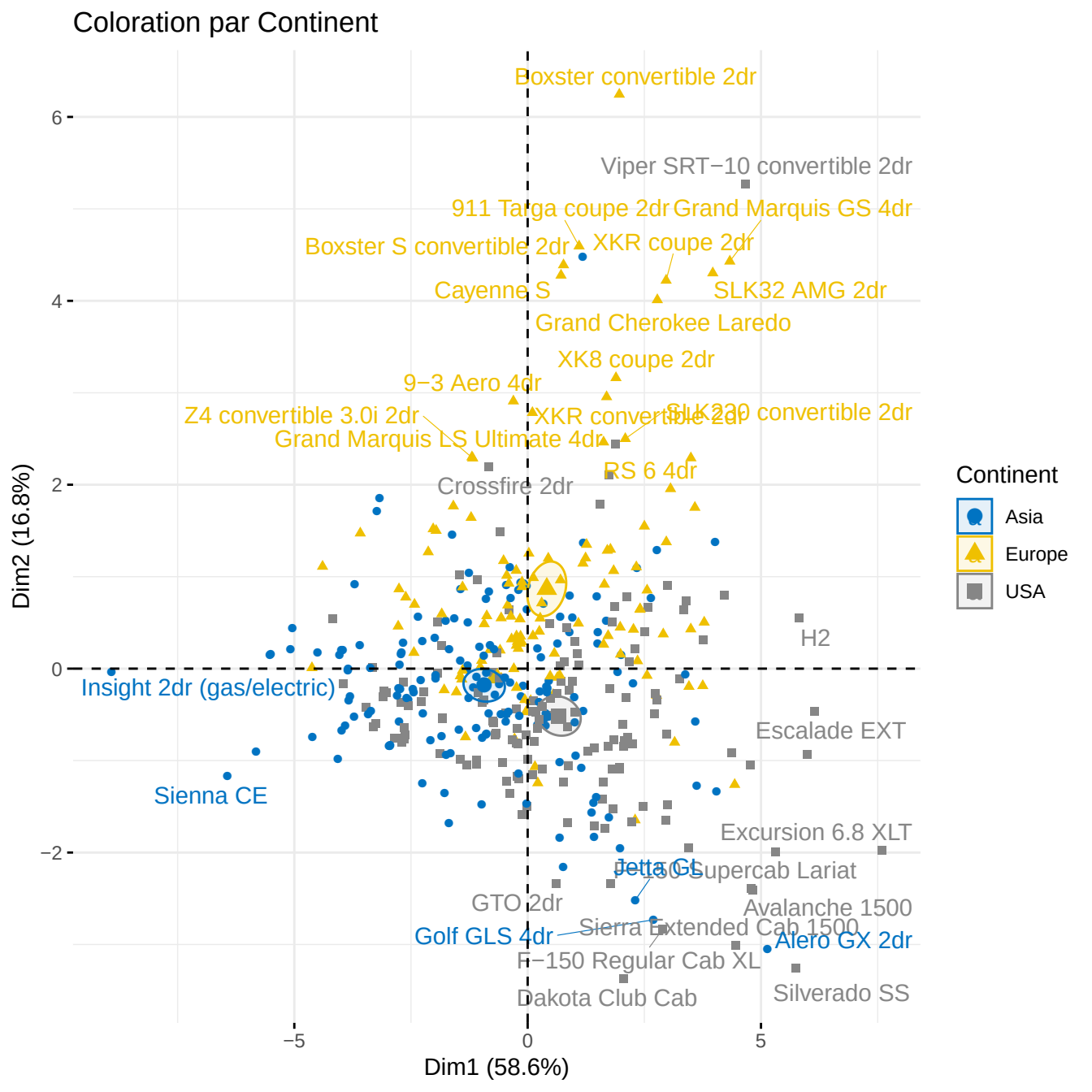

Profils ligne selon leurs cosinus
Asia
Europe
USA
0.050
0.025
0.000
−0.025
−0.4
−0.2
0.0
0.2
Dim2 (3.7%)
Dim1 (96.3%)
cos2
1


Profils ligne selon leurs contribution
Asia
Europe
USA
0.050
0.025
0.000
−0.025
−0.4
−0.2
0.0
0.2
Dim2 (3.7%)
Dim1 (96.3%)
contrib
50
40
30
20
10

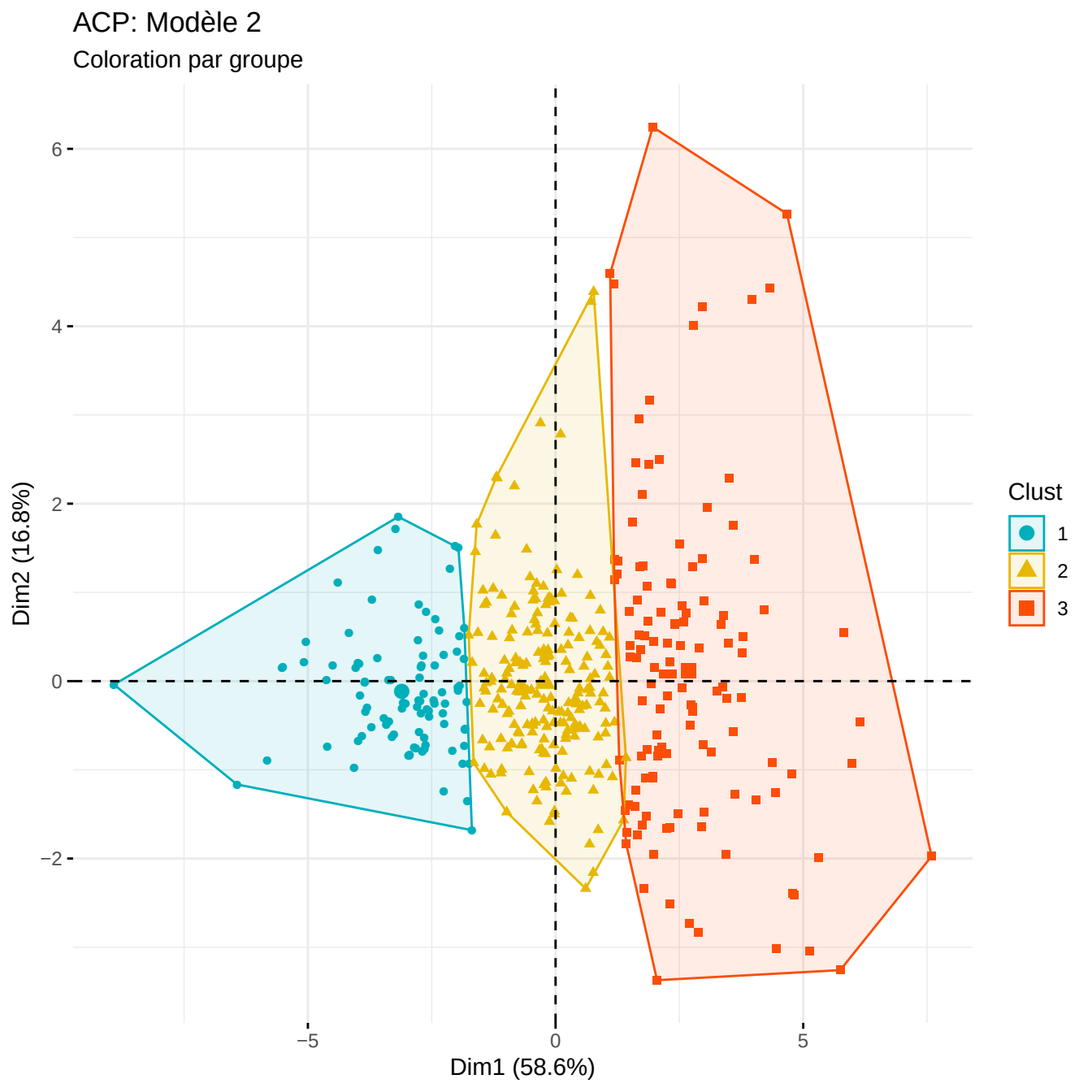

Profils colonnes selon leurs cosinus
SUV
Wagon
Sports
Sedan
Truck
0.10
0.05
0.00
−0.05
−0.10
−0.50
−0.25
0.00
0.25
0.50
0.75
Dim2 (3.7%)
Dim1 (96.3%)
cos2
1

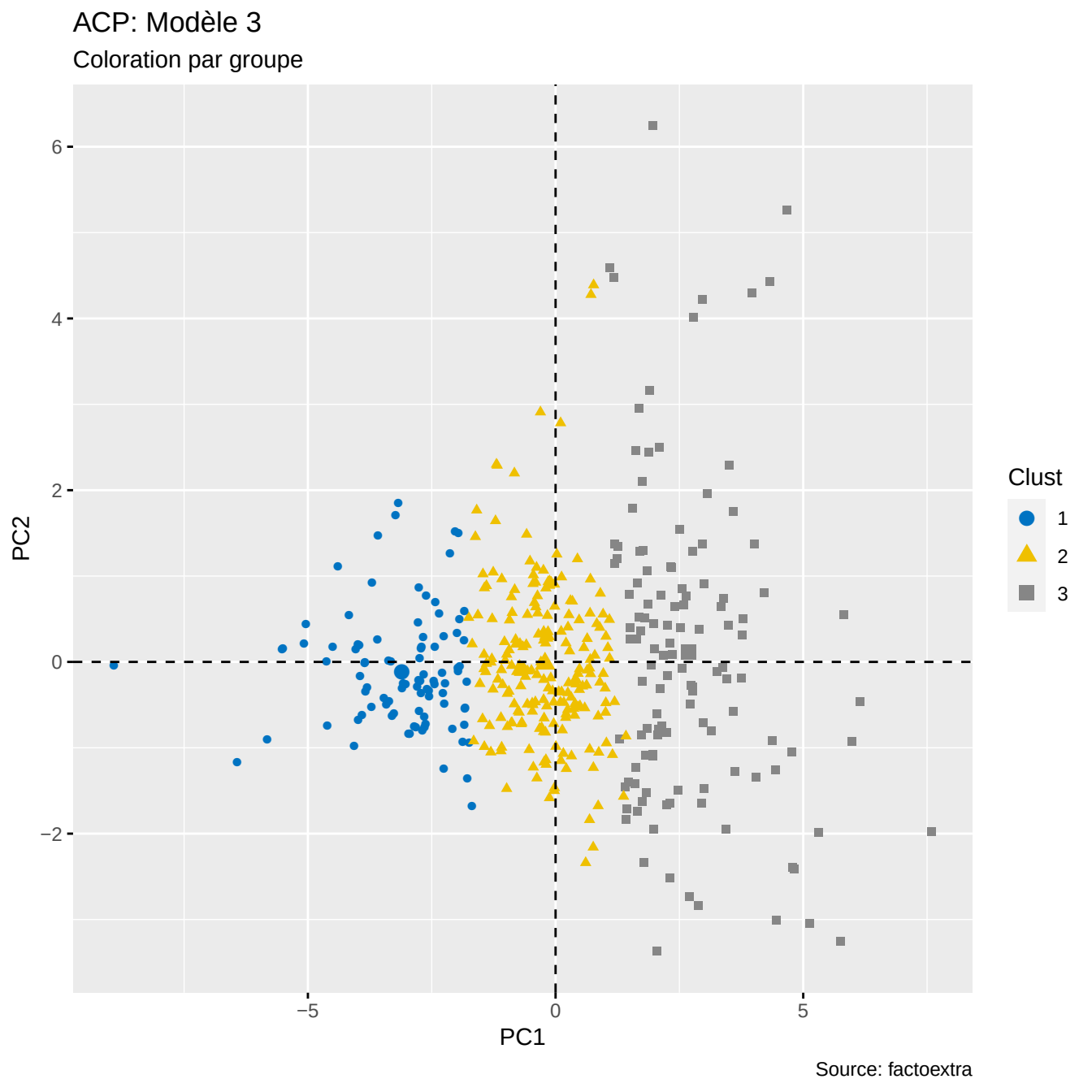

Profils colonnes selon leurs contrib
SUV
Wagon
Sedan
Sports
Truck
0.10
0.05
0.00
−0.05
−0.10
−0.50
−0.25
0.00
0.25
0.50
0.75
Dim2 (3.7%)
Dim1 (96.3%)
contrib
40
30
20
10

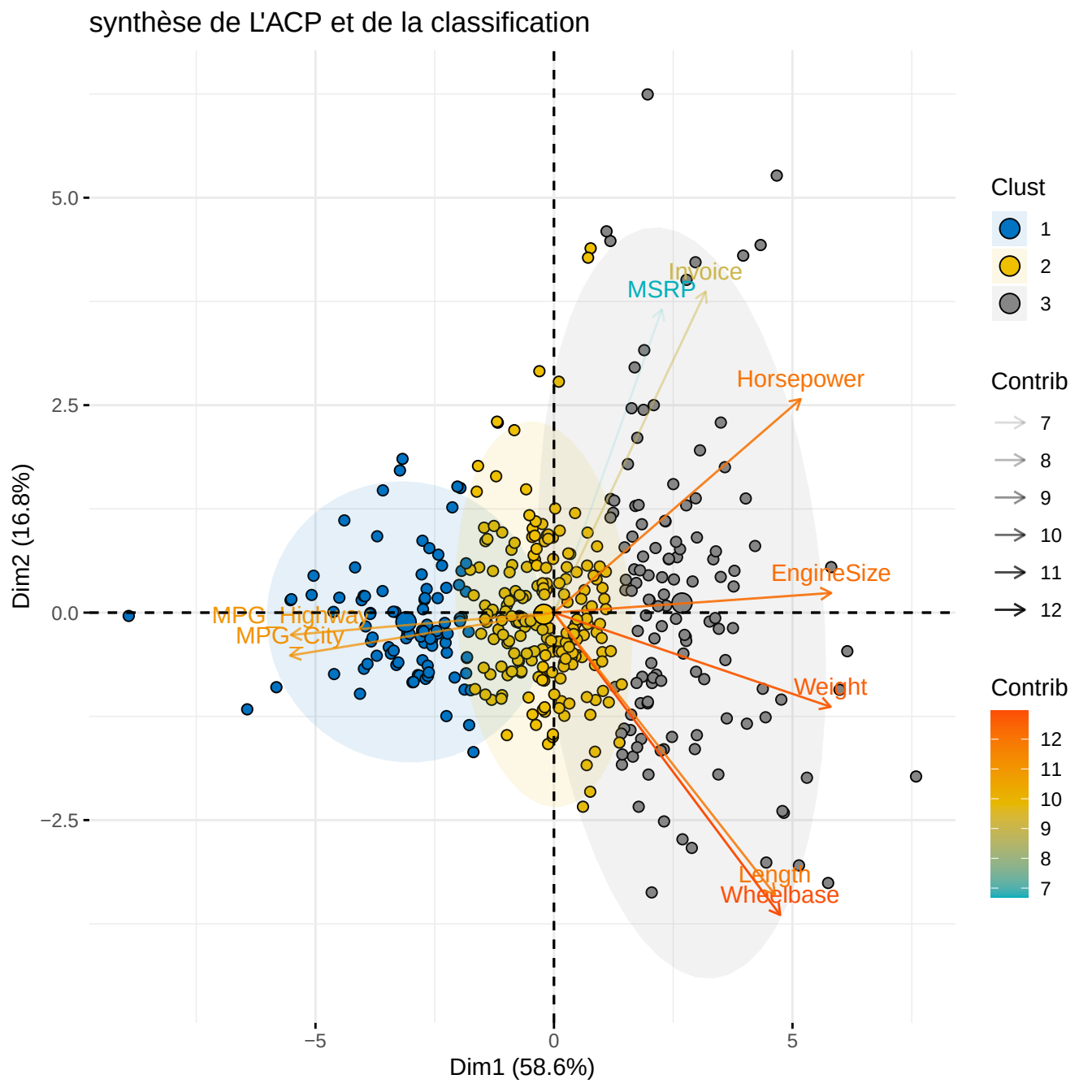

Coloration par Type
Boxster convertible 2dr
Viper SRT−10 convertible 2dr
911 Targa coupe 2dr
Grand Marquis GS 4dr
Boxster S convertible 2dr
XKR coupe 2dr
Cayenne S
SLK32 AMG 2dr
Grand Cherokee Laredo
XK8 coupe 2dr
9−3 Aero 4dr
Z4 convertible 3.0i 2dr
XKR convertible 2dr
SLK230 convertible 2dr
Grand Marquis LS Ultimate 4dr
RS 6 4dr
Crossfire 2dr
H2
Sienna CE
Excursion 6.8 XLT
Jetta GL
F−150 Supercab Lariat
GTO 2dr
Golf GLS 4dr
Avalanche 1500
Sierra Extended Cab 1500
Alero GX 2dr
F−150 Regular Cab XL
Silverado SS
Dakota Club Cab
Dim1 (58.6%)
Dim2 (16.8%)
Type
Hybrid
Sedan
Sports
SUV
Truck
Wagon

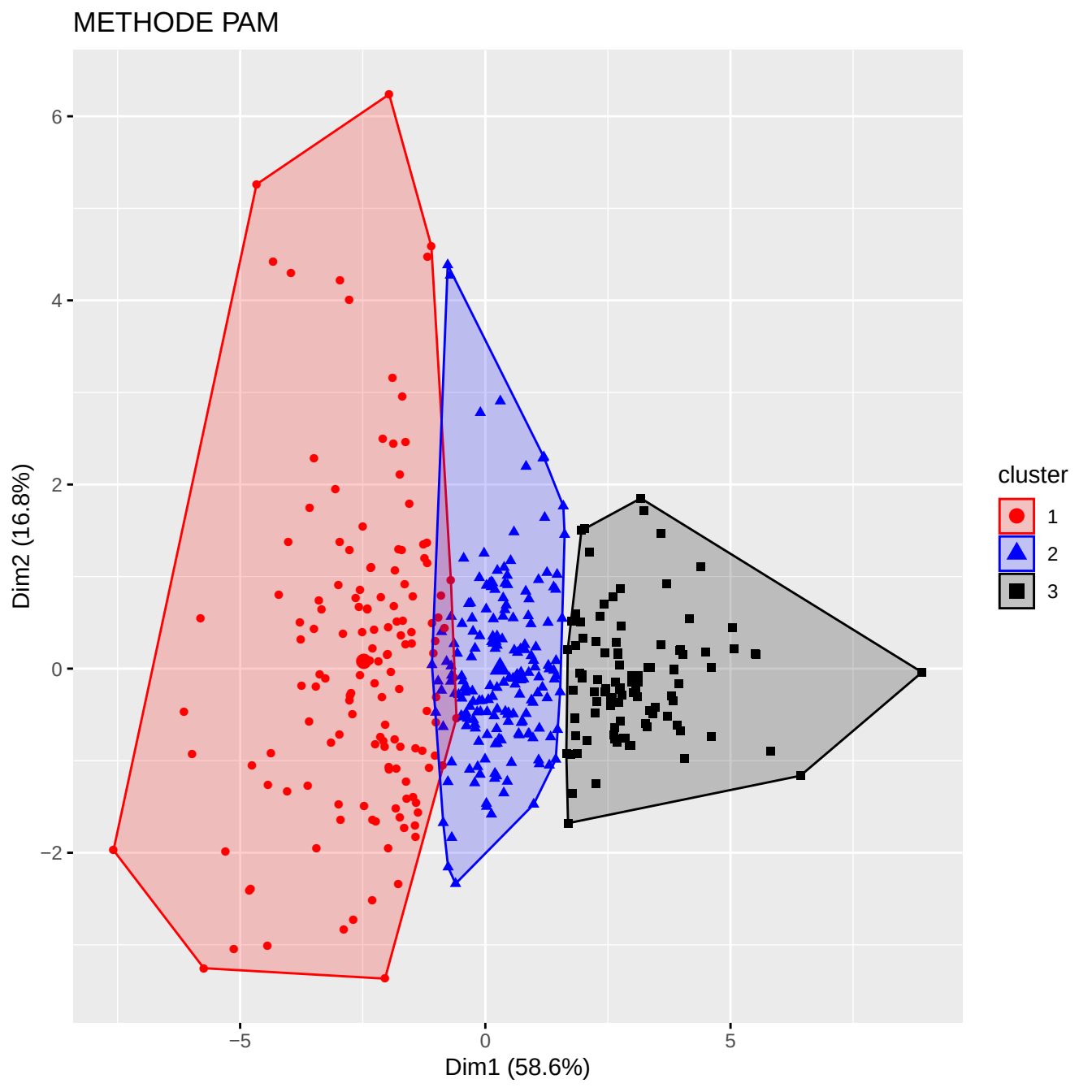

Coloration par Continent
Boxster convertible 2dr
Viper SRT−10 convertible 2dr
911 Targa coupe 2dr
Grand Marquis GS 4dr
Boxster S convertible 2dr
XKR coupe 2dr
Cayenne S
SLK32 AMG 2dr
Grand Cherokee Laredo
XK8 coupe 2dr
9−3 Aero 4dr
Z4 convertible 3.0i 2dr
XKR convertible 2dr
SLK230 convertible 2dr
Grand Marquis LS Ultimate 4dr
RS 6 4dr
Crossfire 2dr
H2
Insight 2dr (gas/electric)
Escalade EXT
Sienna CE
Excursion 6.8 XLT
Jetta GL
F−150 Supercab Lariat
GTO 2dr
Avalanche 1500
Golf GLS 4dr
Sierra Extended Cab 1500
Alero GX 2dr
F−150 Regular Cab XL
Dakota Club Cab
Silverado SS
Dim2 (16.8%)
Dim1 (58.6%)
6
4
2
0
−2
−5
0
5
Continent
Asia
Europe
USA

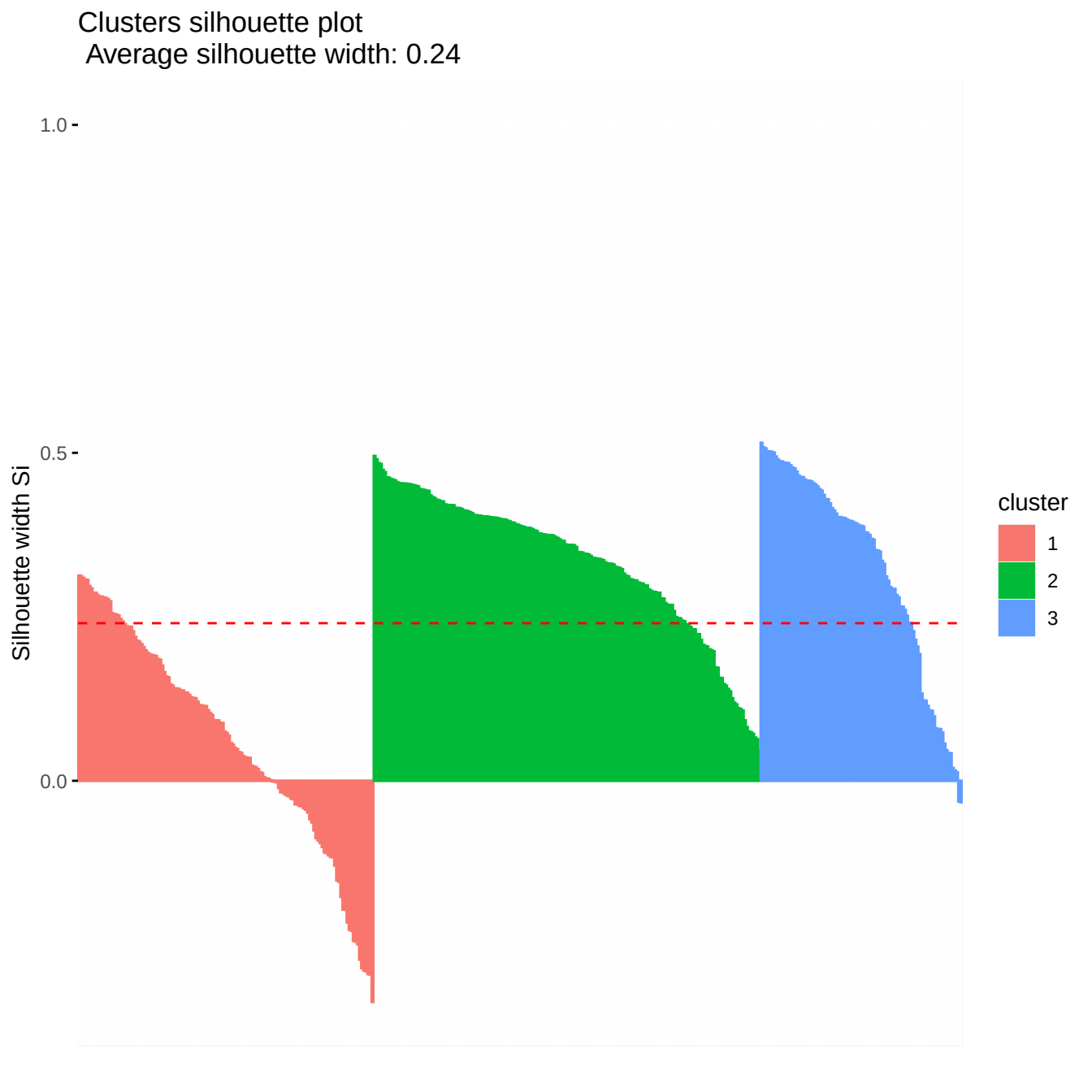
ACP: Modèle 1
Coloration par groupe
5.0
2.5
0.0
−2.5
Dim2 (16.8%)
−5
0
5
Dim1 (58.6%)
Clust
1
2
3

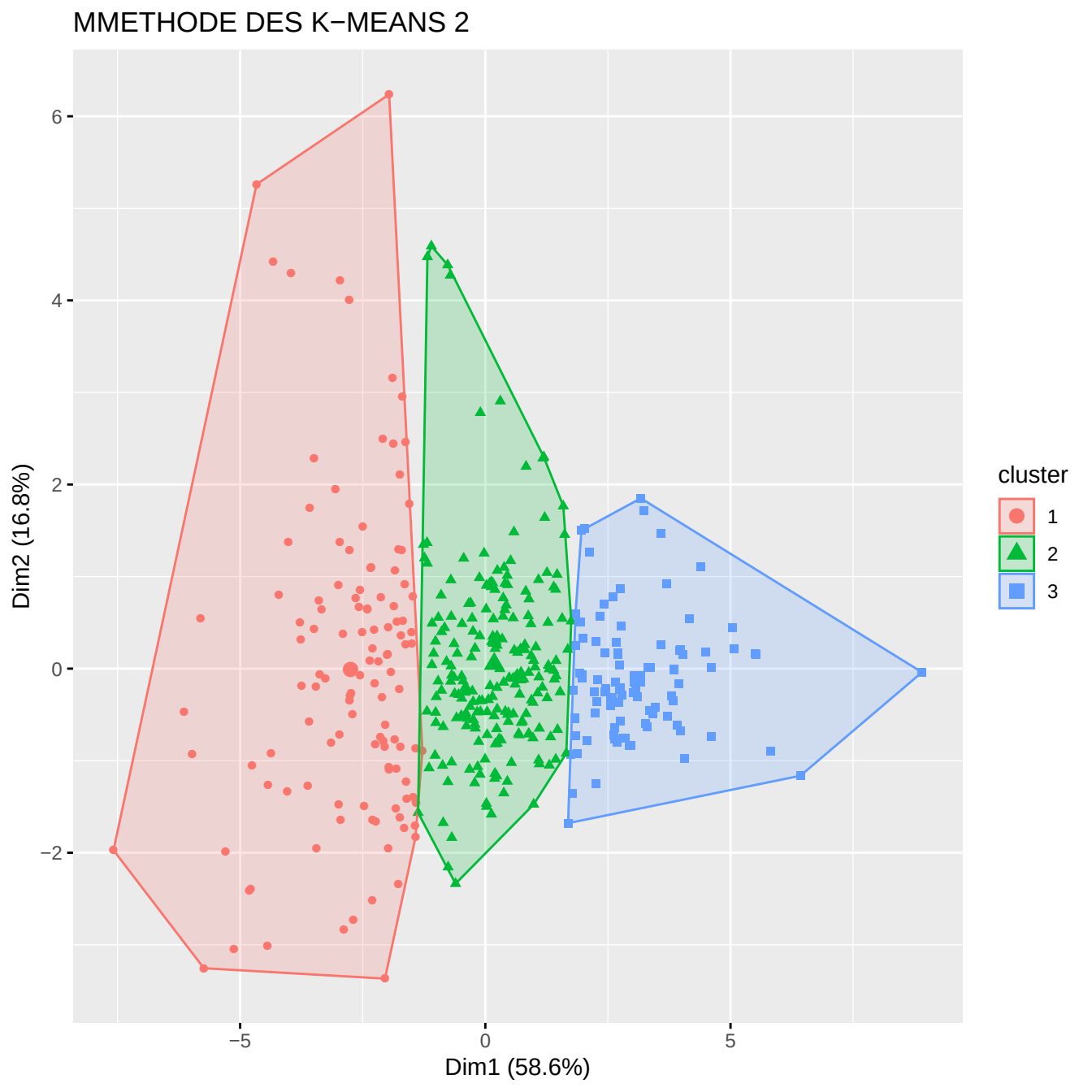

ACP: Modèle 2
Coloration par groupe
Dim2 (16.8%)
Dim1 (58.6%)
6
4
2
0
−2
−5
0
5
Clust
1
2
3

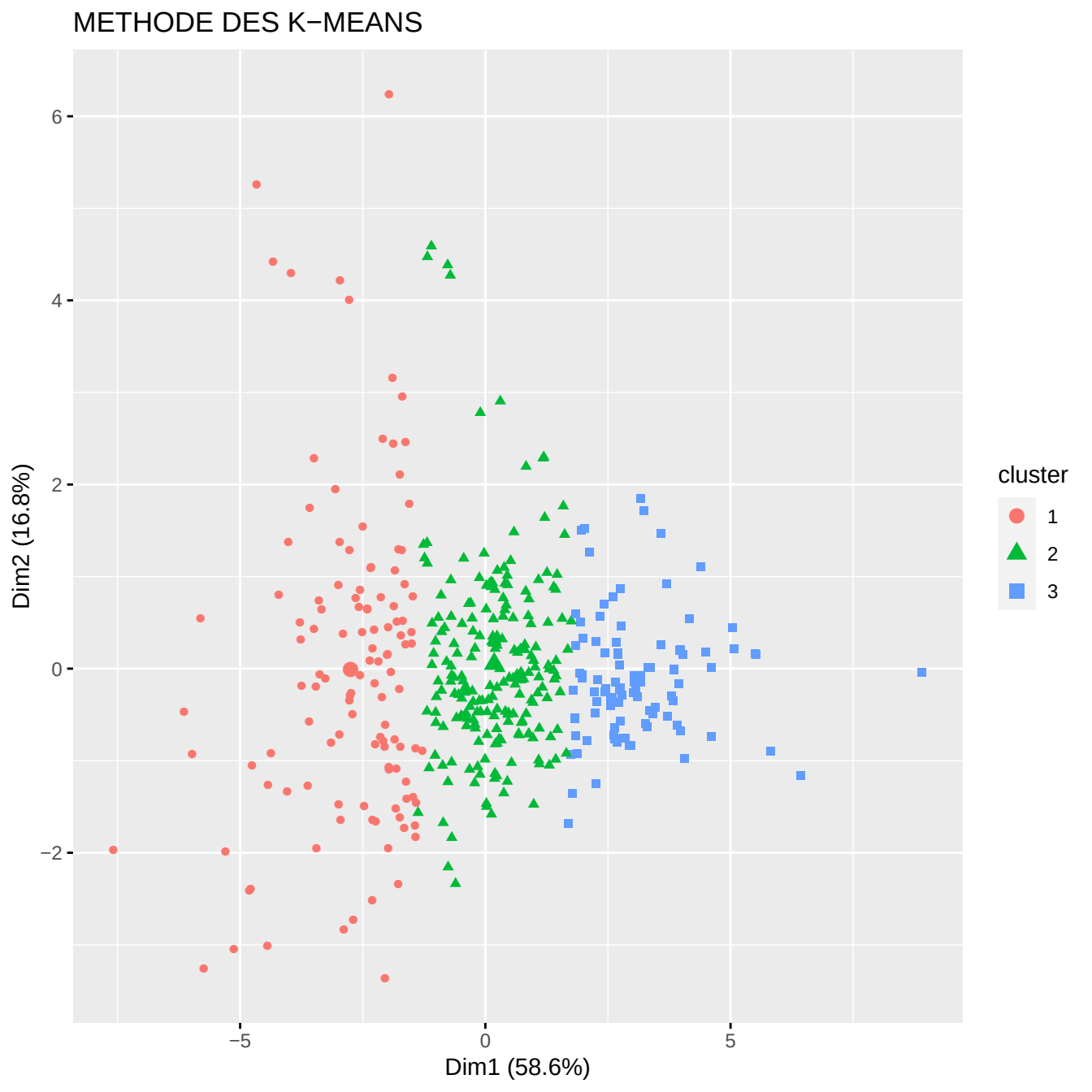

ACP: Modèle 3
Coloration par groupe
6
4
2
0
−2
PC2
−5
0
5
PC1
Clust
1
2
3
Source: factoextra


synthèse de L'ACP et de la classification
Dim2 (16.8%)
Dim1 (58.6%)
5.0
2.5
0.0
−2.5
−5
0
5
Invoice
MSRP
Horsepower
EngineSize
MPG.Highway
MPG.City
Weight
Length
Wheelbase
Clust
1
2
3
Contrib
7
8
9
10
11
12
Contrib
12
11
10
9
8
7


METHODE PAM
Dim2 (16.8%)
Dim1 (58.6%)
6
4
2
0
−2
−5
0
5
cluster
1
2
3


Clusters silhouette plot
Average silhouette width: 0.24
1.0
0.5
0.0
Silhouette width Si
cluster
1
2
3


MMETHODE DES K−MEANS 2
6
4
2
0
−2
Dim2 (16.8%)
−5
0
5
Dim1 (58.6%)
cluster
1
2
3


METHODE DES K−MEANS
6
4
2
0
−2
Dim2 (16.8%)
−5
0
5
Dim1 (58.6%)
cluster
1
2
3