



The R Graph Gallery

Réunion Technique R, Montpellier, Dec 2016

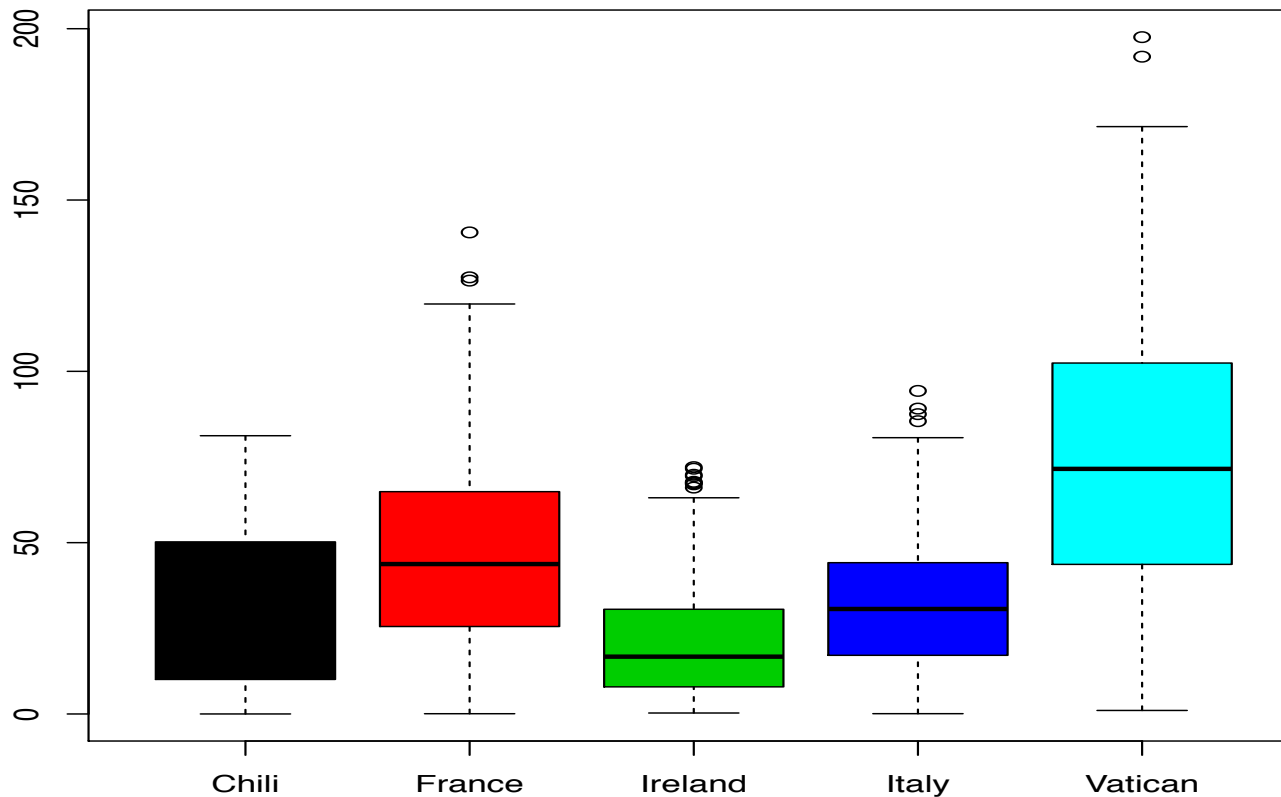
Yan Holtz, holtz@supagro.fr

A quick basic graph

names	country	drink
Chelsea	France	45.629739
Marissa	Ireland	5.906875
Mara	France	36.089158
A'Tiana	Chili	13.052119
...	...	...
Fardowsa	Ireland	5.573123
Makayla	Vatican	83.58251

+

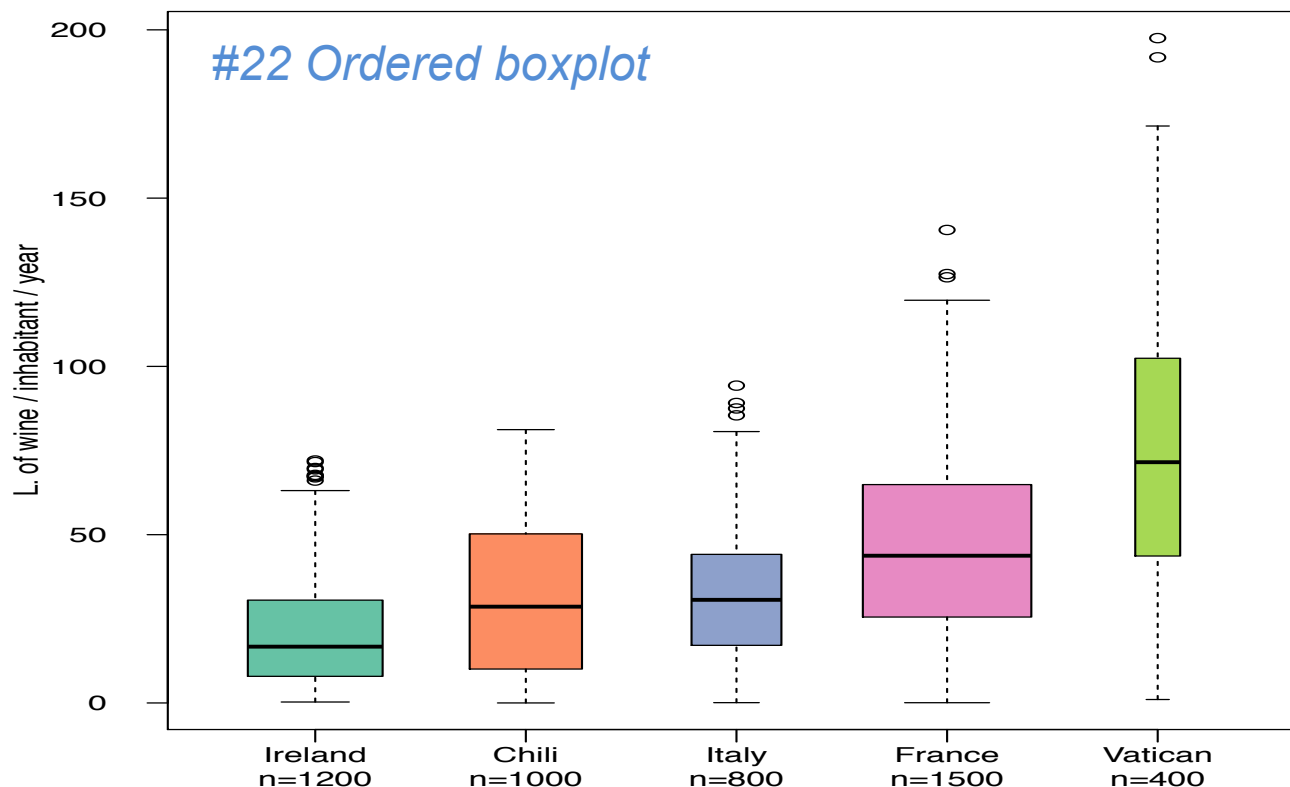
```
boxplot(data$drink ~ data$country, col=c(1:5) )
```



- R = high efficiency to produce simple graphics.
- But more work is needed for an attractive communication

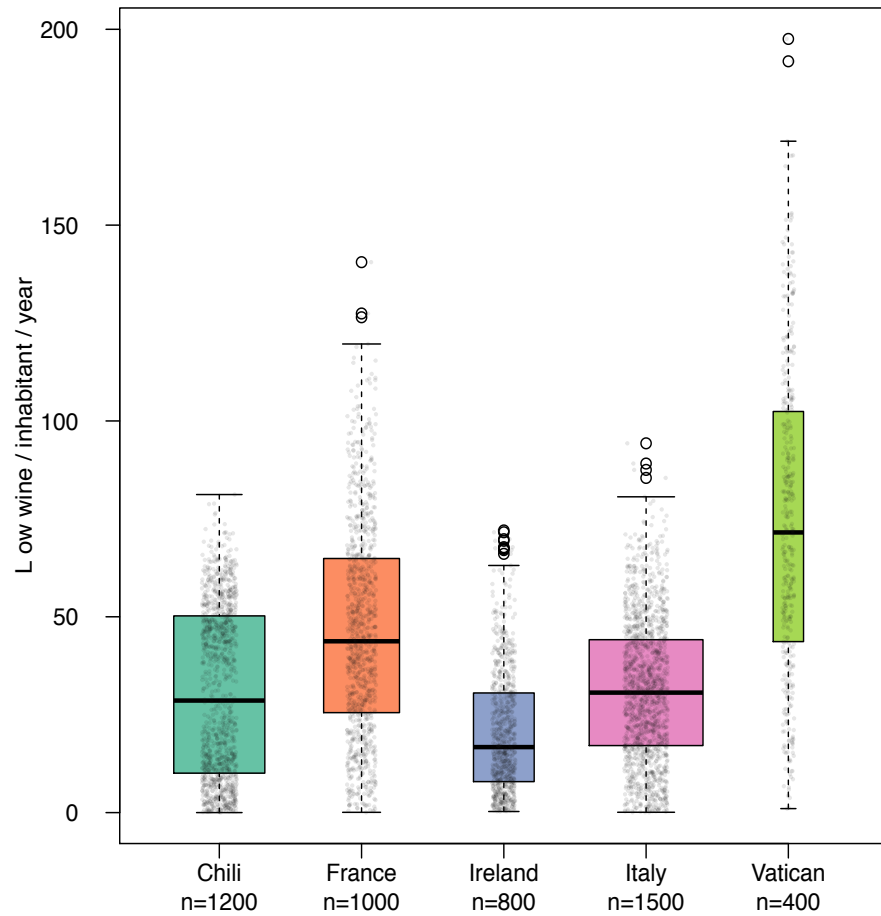
... the custom version!

```
library("RColorBrewer")
par(mgp=c(3,1.5,0) , mar=c(4,5,2,2) )
proportion=table(data$country)/nrow(data)
new_order <- with(data, reorder(country , drink, median))
boxplot(data$drink ~ new_order , ylab="L. of wine / inhabitant / year" , col=brewer.pal(5, "Set2") , las=1 ,
width=proportion, xaxt="n" )
axis(1, at=c(1:5) , labels=paste(levels(data$country),table(data$country),sep="\nn=") )
```

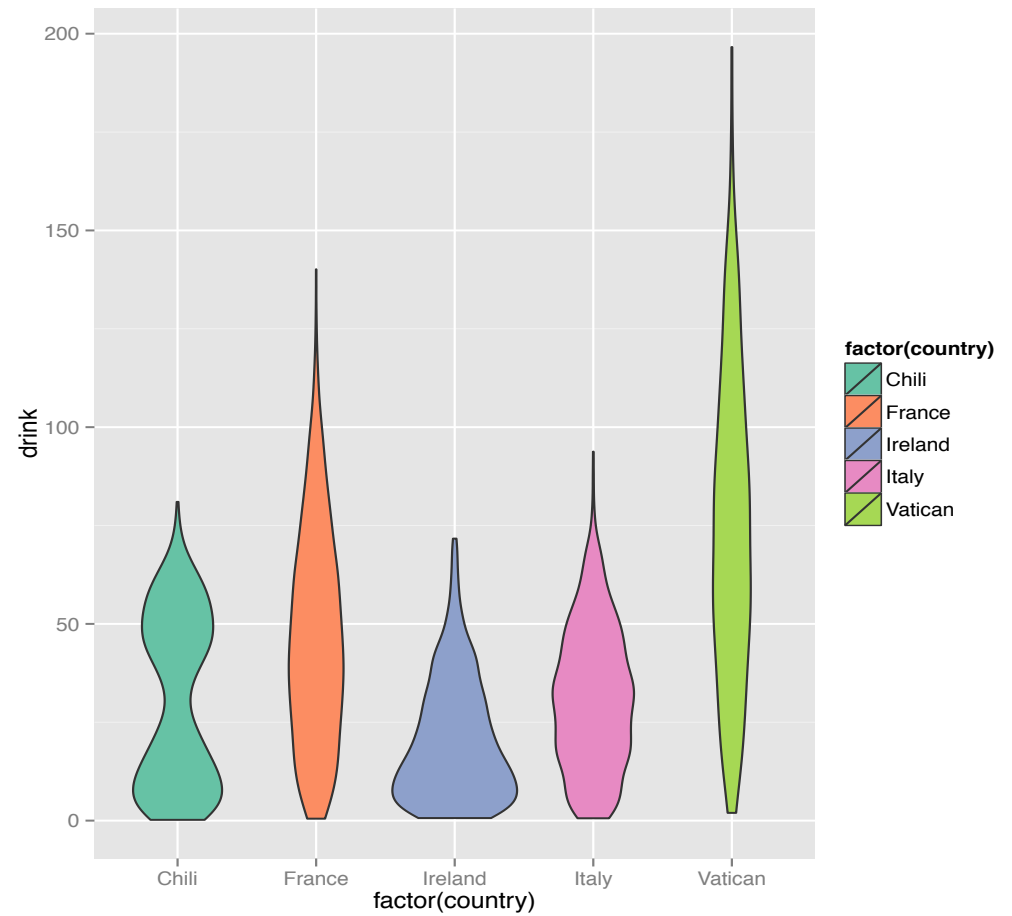


- Better graph=better understanding
- Hard to remember every option!

#96 Boxplot with jitter

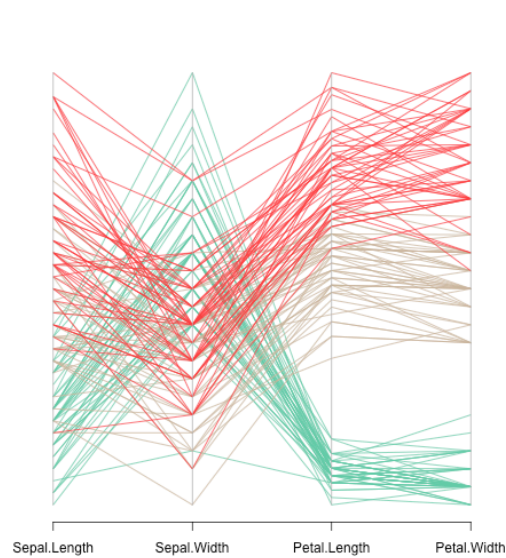


#95 Violin Plot

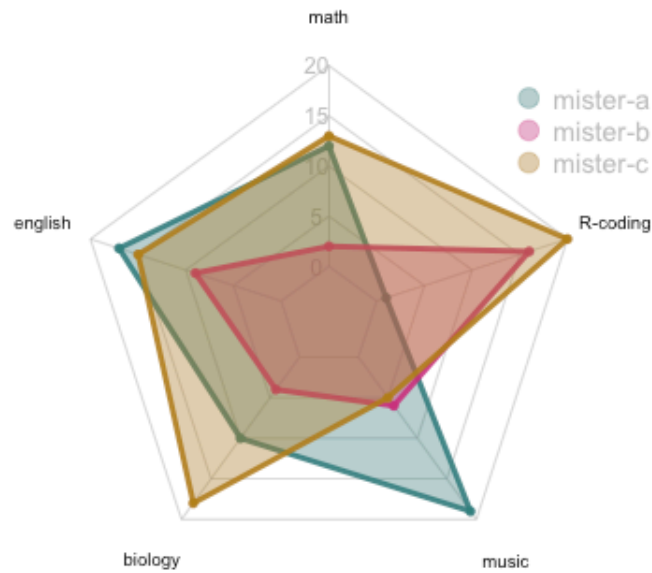


- DataViz is **not only aesthetic!**
- Do you know every **chart possibility?**

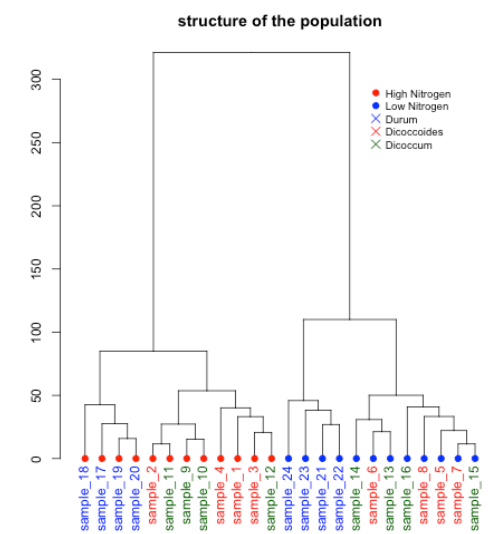
A world of possibilities



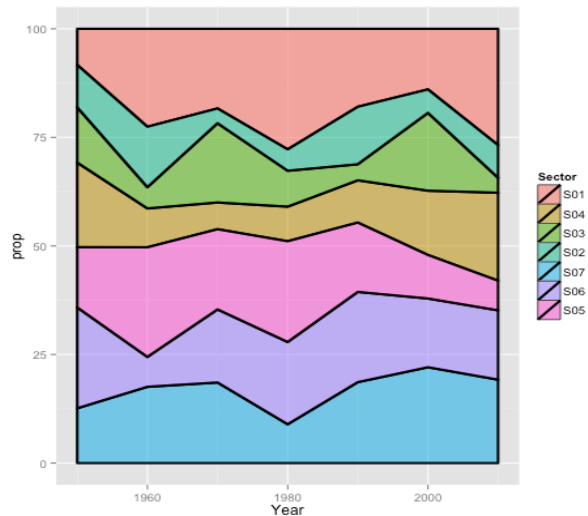
#93 Parallel plot



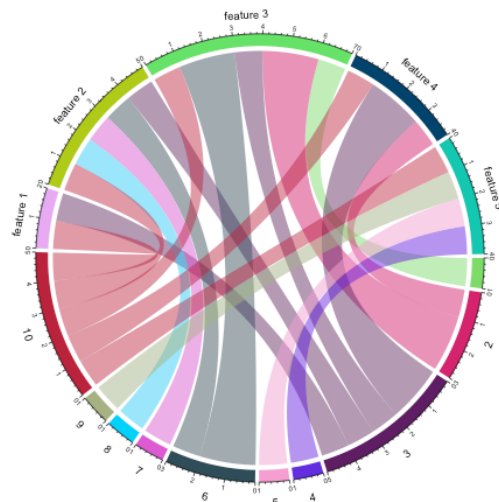
#143 Spider Graph



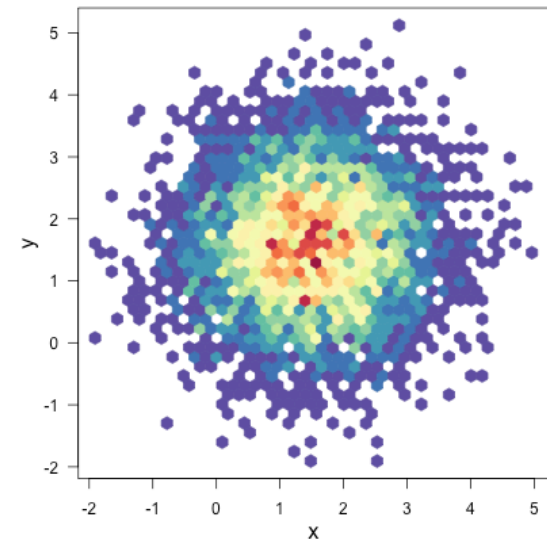
#31 Clustering tree



#136 Stacked area



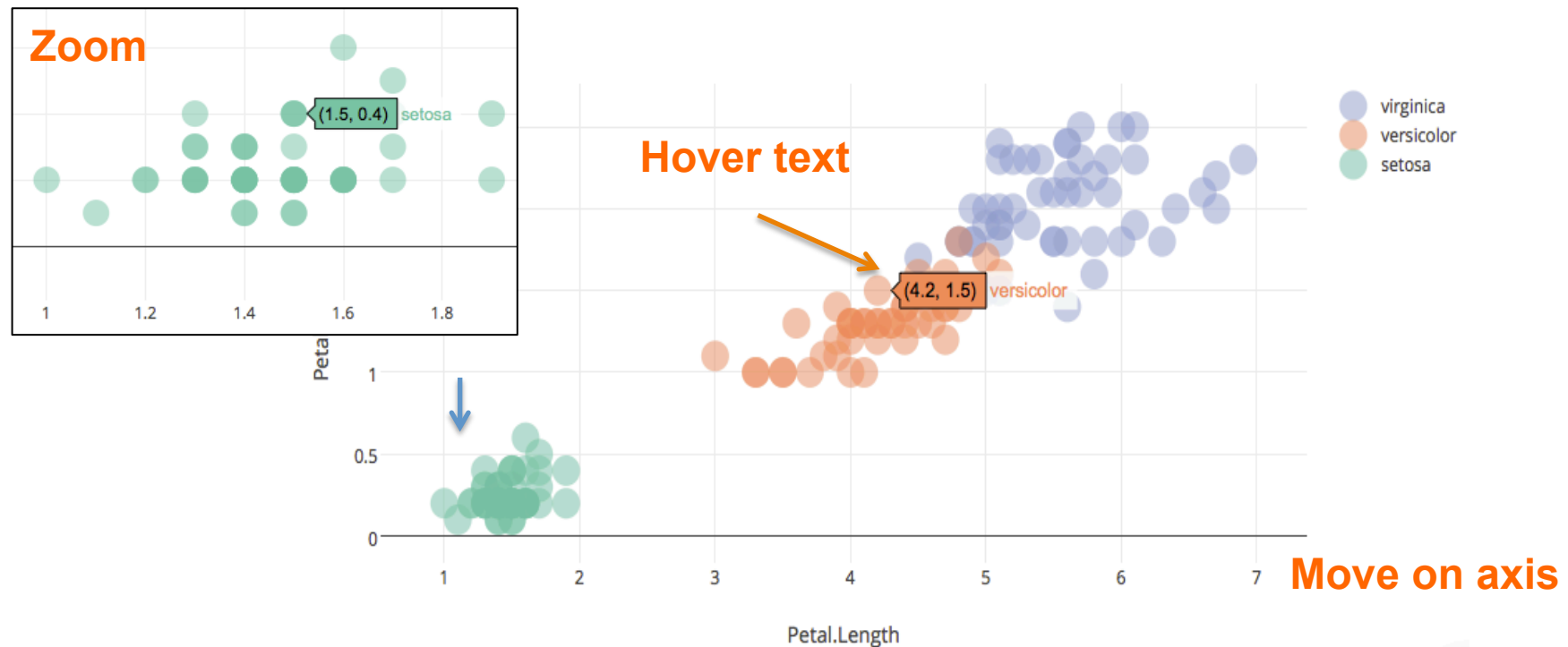
#123 Circular plot



#100 scatter & binning

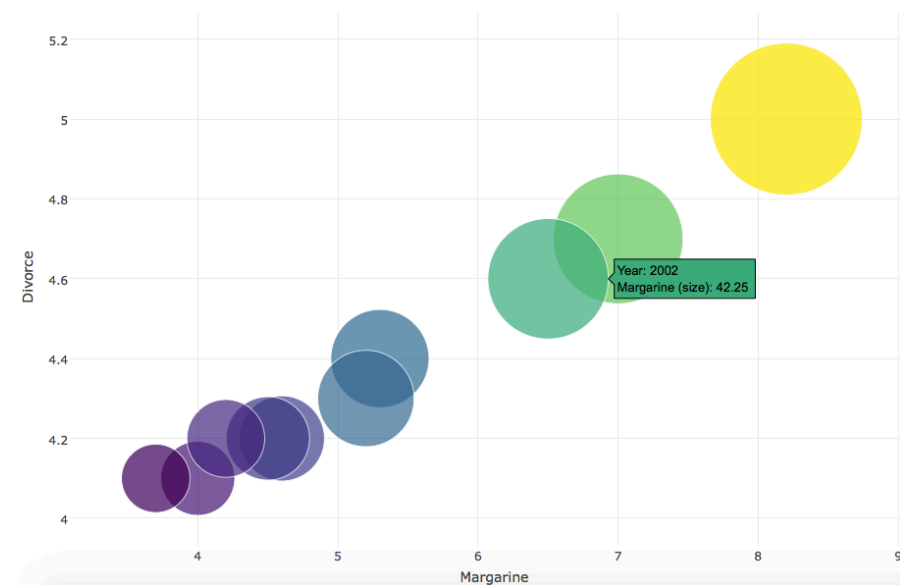
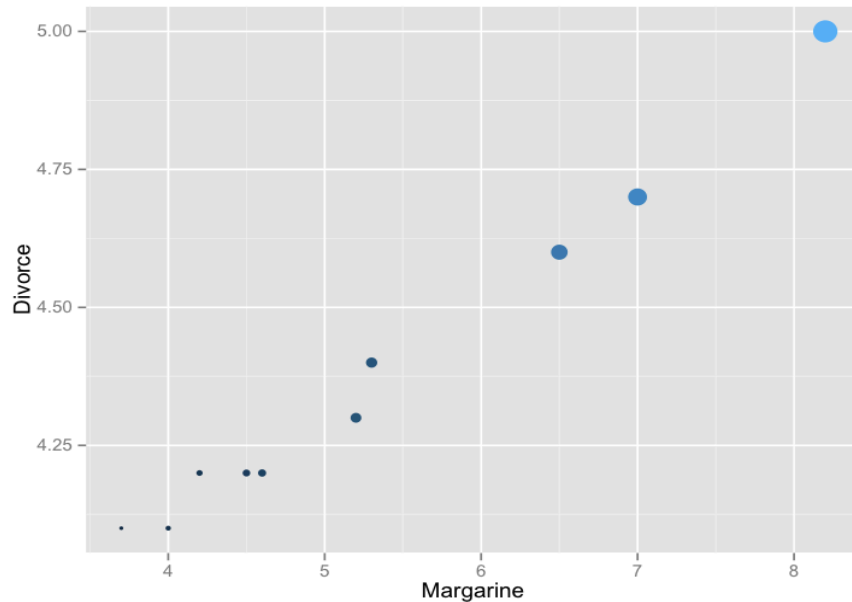
Next step: Interactive plots with the **HTML widgets**

HTML widgets: Dygraph - Leaflet - Plotly - rbokeh - visNetwork - networkD3 - DataTables - Threejs - Rglwidget - DiagrammeR - HighCharter - MetricsGraphics – www.htmlwidgets.org/



- Interactivity=better **access to information**
- Bring your **data** to **life**!
- Interactivity with R is **easy**

Plotly



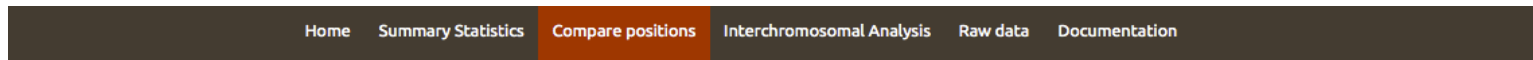
```
qplot(  
  data=data, x=Margarine, y=Divorce,  
  colour = Margarine,  
  size=Margarine  
)
```

```
plot_ly(  
  data, x=Margarine , y=Divorce ,  
  size=Margarine,  
  color=Margarine,  
  mode="markers" ,  
  text=paste("Year: ",year,sep="") ,  
  hoverinfo="text"  
)
```

- **Plotly** : syntax is close to **ggplot2**
- Possibility to **share** your graphics

Shiny

- Shiny: Turn your **R** analyses into interactive **web applications**
- <http://shiny.rstudio.com/>
- Combine the functionality of **shiny**, the aesthetics of **ggplot2** & the interactivity of **plotly**!



- Maps comparison -

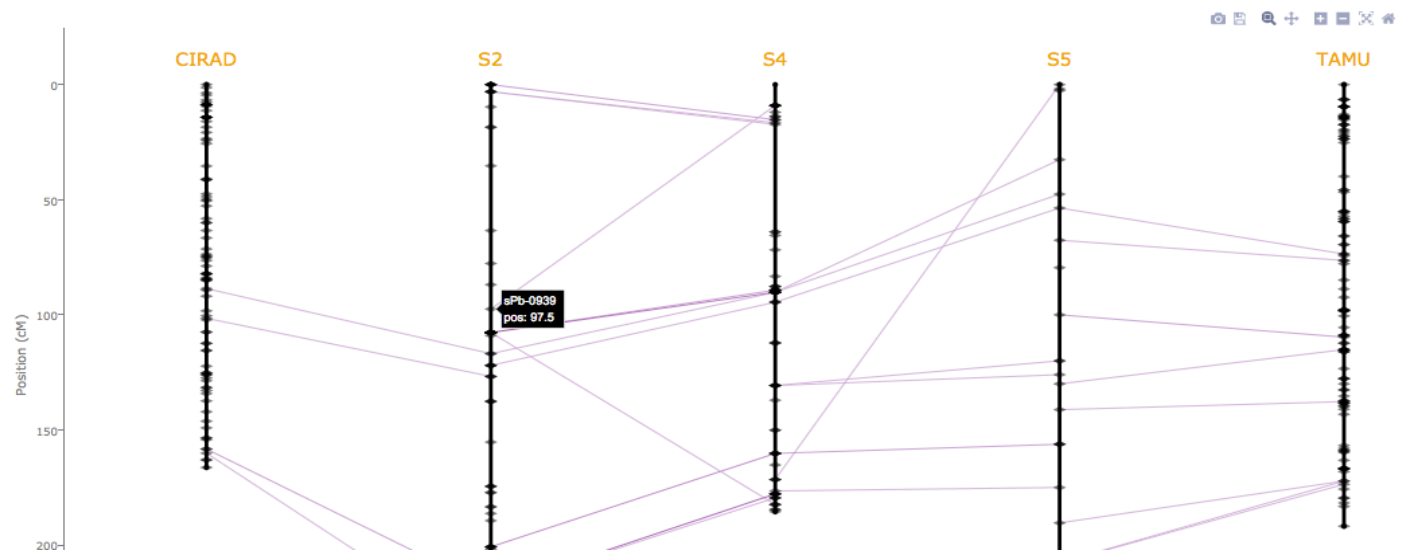
Ergo ego senator inimicus, si ita vultis, homini, amicus esse, sicut semper fui, rei publicae debeo. Quid? si ipsas inimicitias, depono rei publicae causa, quis me tandem iure reprehendet, praesertim cum ego omnium meorum consiliorum atque factorum exempla semper ex summorum hominum consiliis atque factis mihi censuerim petenda.

Choose chromosome!

1

Choose maps!

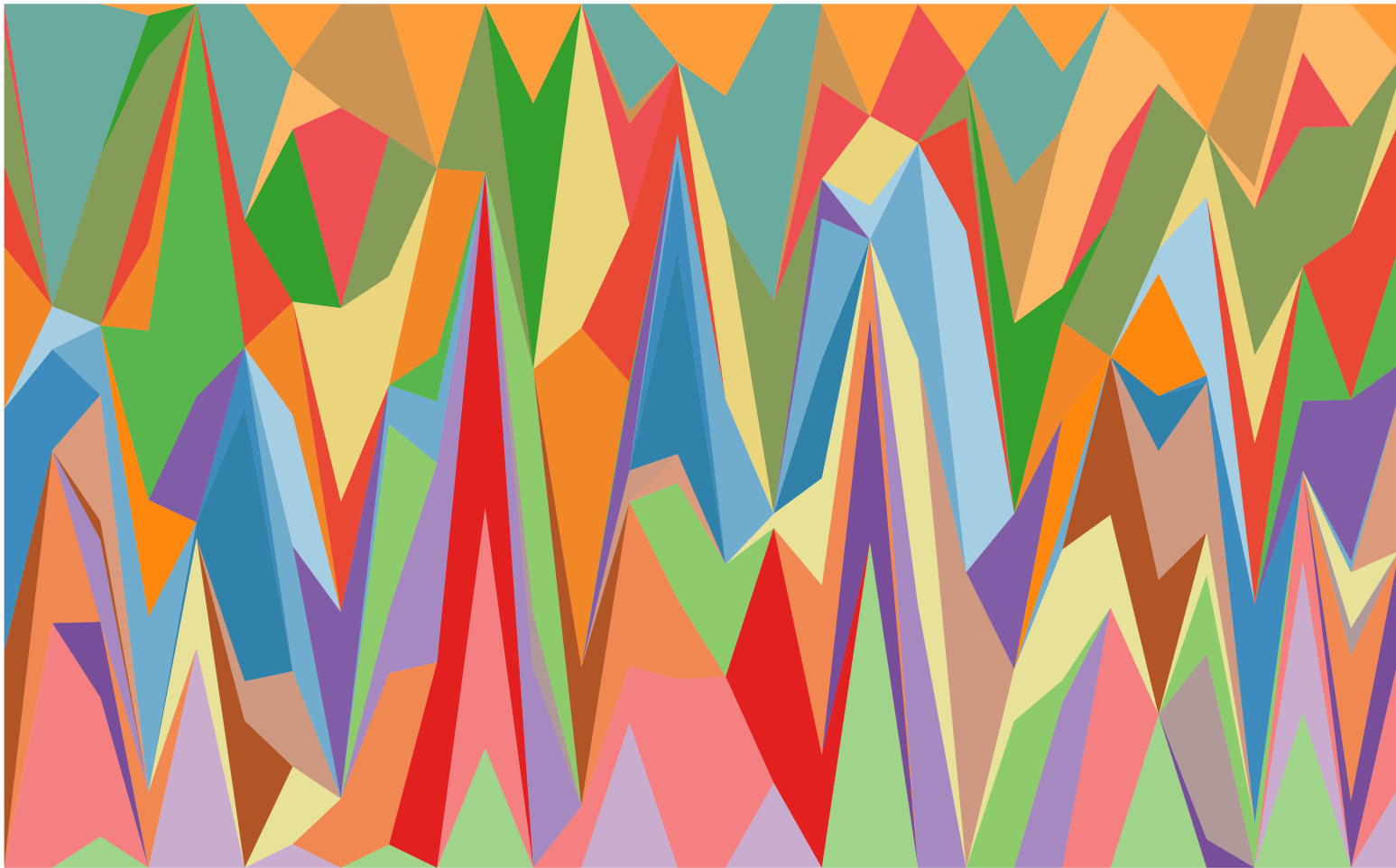
☒ CIRAD ☒ S2 ☒ S4 ☒ S5 ☐ S6 ☒ TAMU



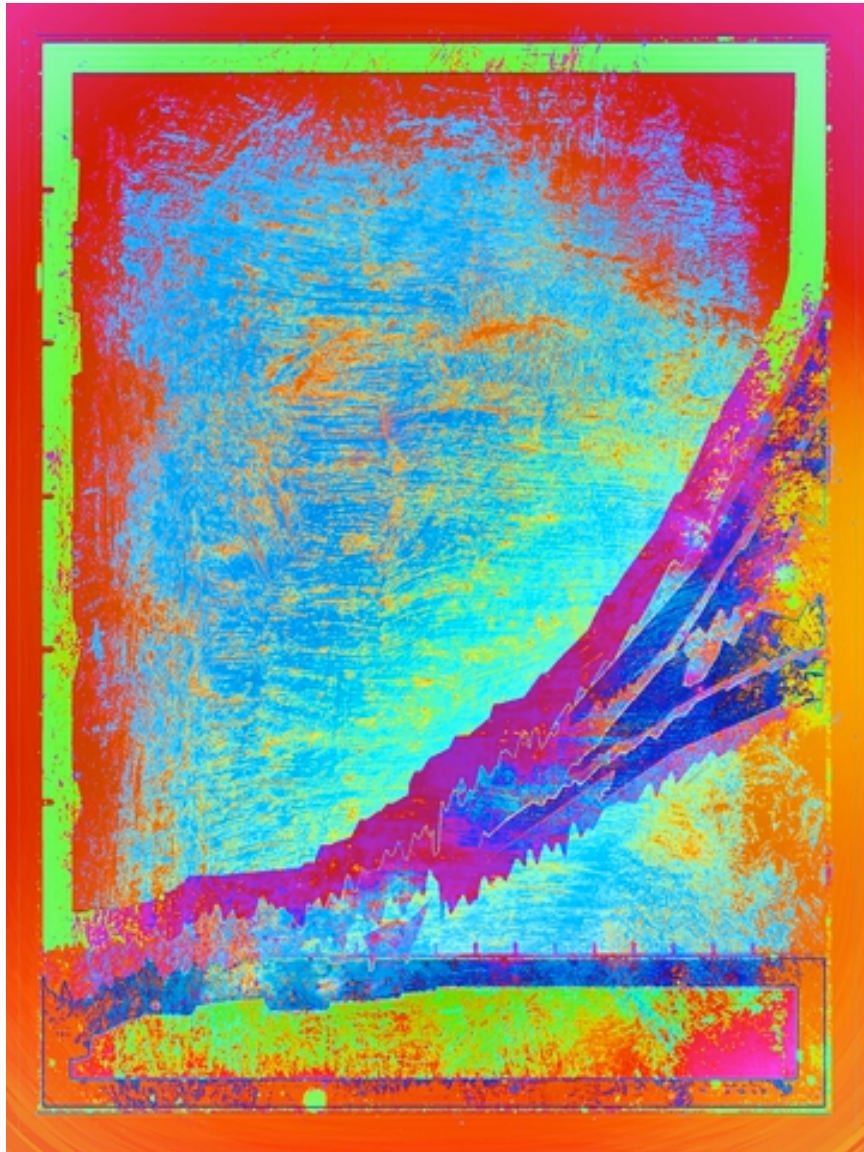
Science



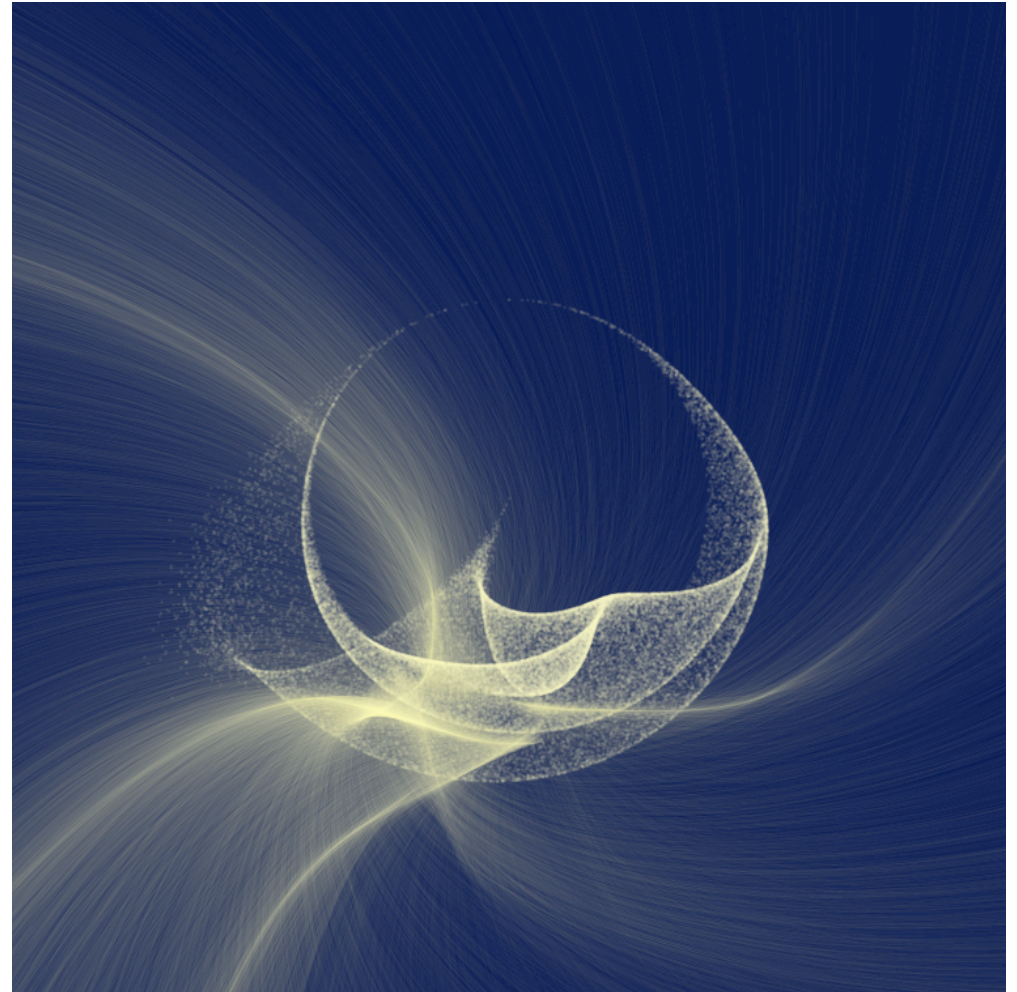
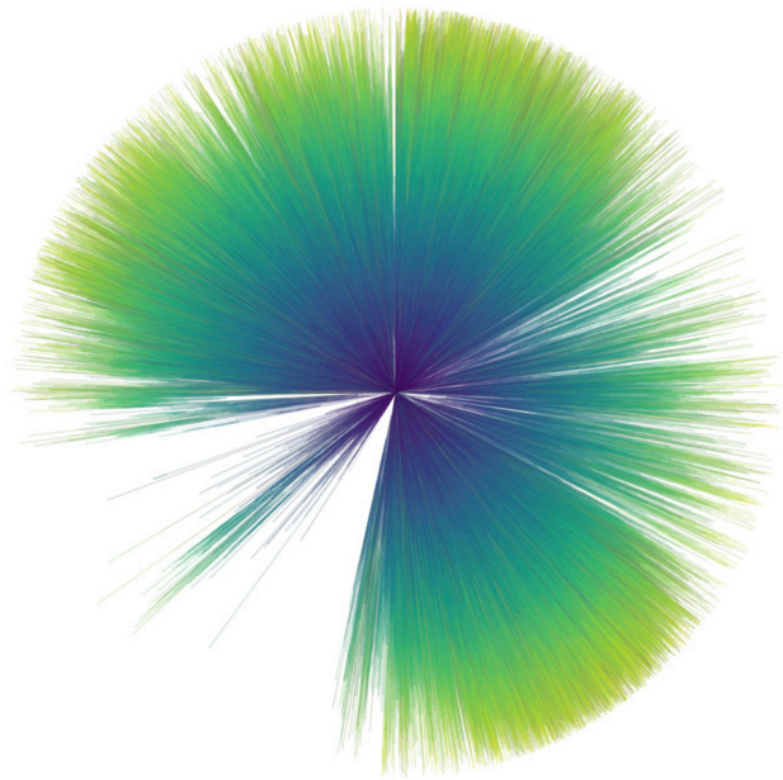
Art



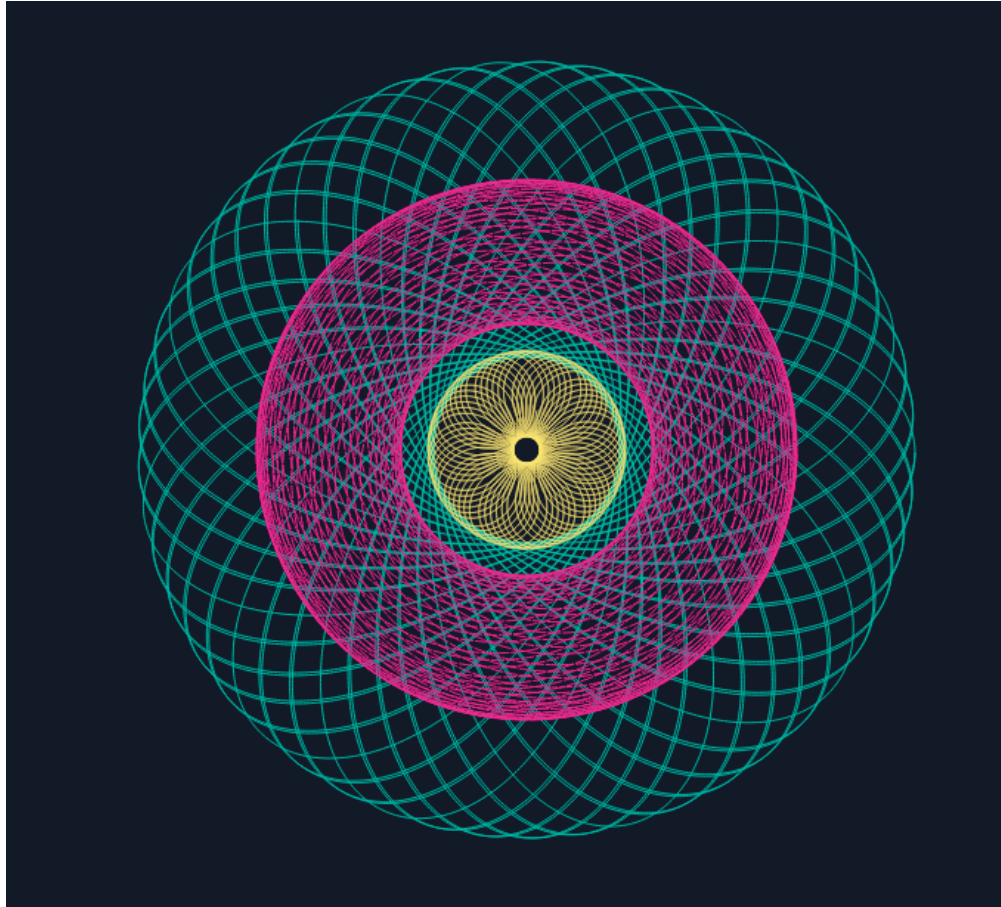
Holtz Yan - France



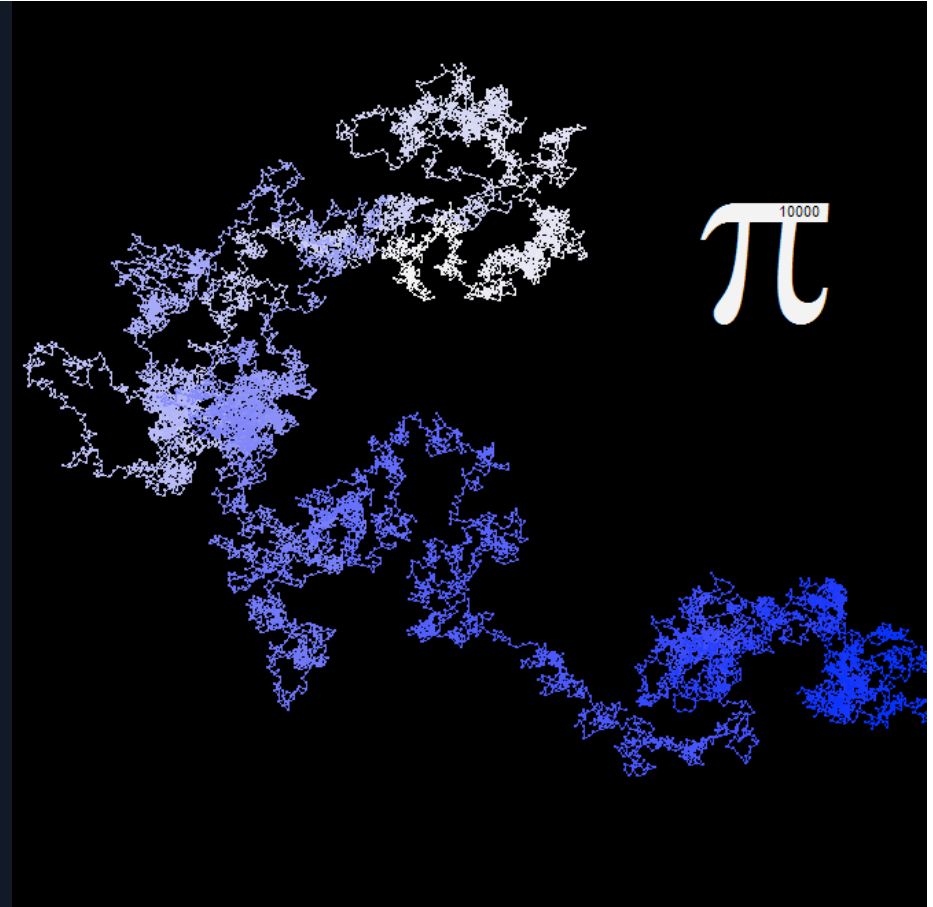
Alisa Singer- USA



Marcus Volz - Australia

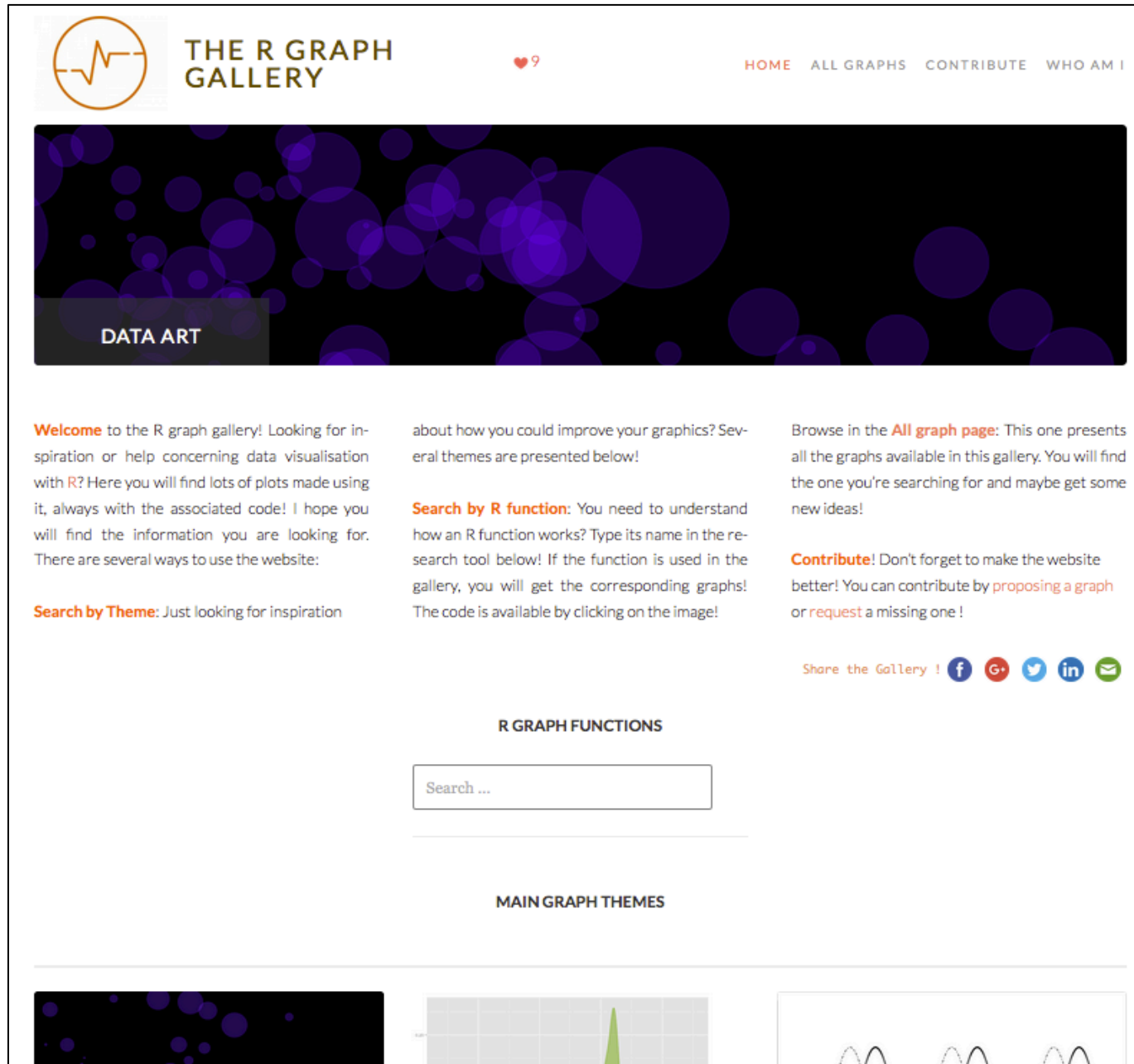


Nadieh Bremer - Netherland



Päivi Julin - Finland

Welcome page of the gallery



The screenshot shows the homepage of 'THE R GRAPH GALLERY'. At the top left is a logo with a stylized orange line graph inside a circle. Next to it is the text 'THE R GRAPH GALLERY' and a red heart icon with the number '9'. To the right is a navigation menu with links: 'HOME', 'ALL GRAPHS', 'CONTRIBUTE', and 'WHO AM I'. Below the header is a large banner with a black background and purple circles of various sizes. A dark grey box in the bottom left of the banner contains the text 'DATA ART'. Below the banner, there is a welcome message, a search section for R functions, and a section for main graph themes. The search section includes a text input field with the placeholder 'Search ...'. The main graph themes section shows three preview images: a dark background with purple circles, a grid with a green triangle, and a white background with three black arches.

THE R GRAPH GALLERY ❤️ 9

HOME ALL GRAPHS CONTRIBUTE WHO AM I

DATA ART

Welcome to the R graph gallery! Looking for inspiration or help concerning data visualisation with R? Here you will find lots of plots made using it, always with the associated code! I hope you will find the information you are looking for. There are several ways to use the website:

Search by Theme: Just looking for inspiration

about how you could improve your graphics? Several themes are presented below!

Search by R function: You need to understand how an R function works? Type its name in the research tool below! If the function is used in the gallery, you will get the corresponding graphs! The code is available by clicking on the image!

Browse in the **All graph page**: This one presents all the graphs available in this gallery. You will find the one you're searching for and maybe get some new ideas!

Contribute! Don't forget to make the website better! You can contribute by [proposing a graph](#) or [request](#) a missing one !

Share the Gallery ! [f](#) [G+](#) [t](#) [in](#) [e](#)

R GRAPH FUNCTIONS

Search ...

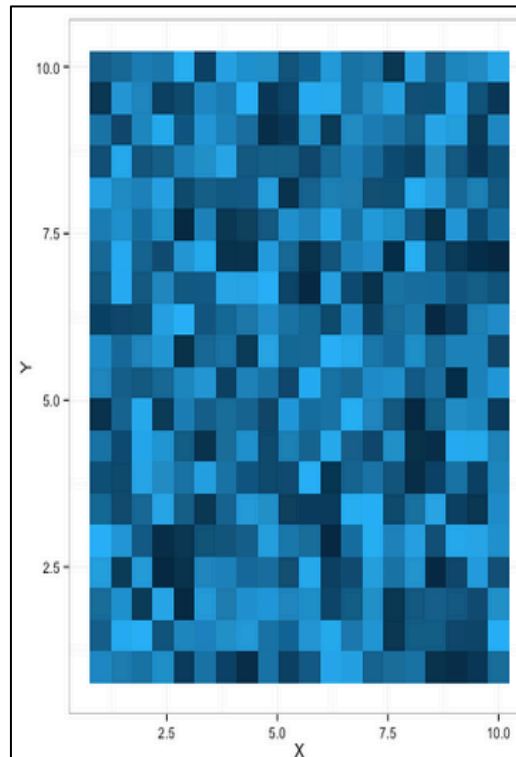
MAIN GRAPH THEMES

www.r-graph-gallery.com

- >250 charts
- Organized by theme
- Search bar for function or graph type

Example of a graphic page

- Reproducible code
- Link to relevant libraries, functions and related graphics
- Each graph targets a specific topic



This is a **levelplot** made using the **ggplot2** library. Each square represents a value of the input matrix.

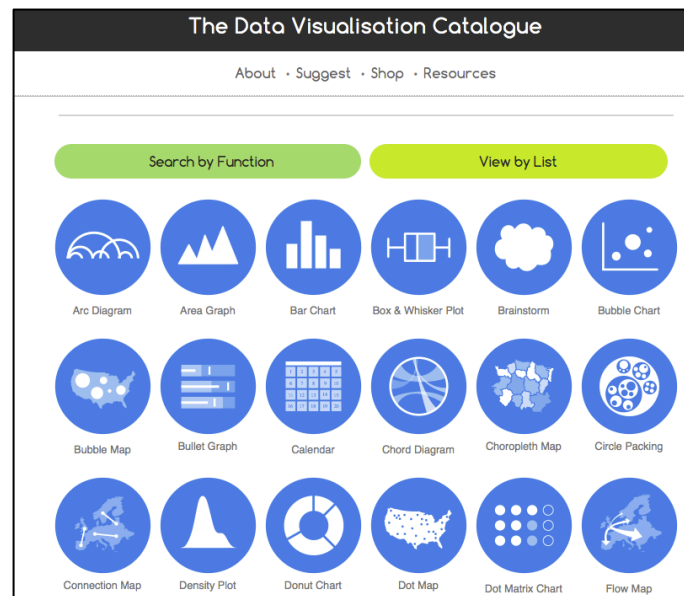
You can also draw levelplot without **ggplot2**. Have a look to **graph #78** if you have a square matrix, or to **graph #27** if your data are organized in 3 columns !

```
## Example data
x <- seq(1,10, length.out=20)
y <- seq(1,10, length.out=20)
data <- expand.grid(X=x, Y=y)
data$Z <- runif(400, 0, 5)

# Levelplot with ggplot2
library(ggplot2)
ggplot(data, aes(X, Y, z= Z)) + geom_tile(aes(fill = Z)) + theme_bw()

# To change the color of the gradation :
ggplot(data, aes(X, Y, z= Z)) + geom_tile(aes(fill = Z)) +
  theme_bw() +
  scale_fill_gradient(low="white", high="blue")
```


Other resources



<http://www.datavizcatalogue.com/>

R graph gallery

The blog is a collection of script examples with example data and output plots. R produce excellent quality graphs for data analysis, science and business presentation, publications and other purposes. Self-help codes and examples are provided. Enjoy nice graphs !!



2d (1) 3 variable plots (5) 3D plots (8) arc (1) area (1) association plot (4) bar (1) barchart (13) bean plot (1) beeswarm (1) binomial (1) biplot (1) box-percentile (2) box-whisker plot (1) boxplot (10) bubble plot (6) caterpillar (1) categorical data (6) caterpillar plot (1) circle (2) cluster (2) color (2) color (1) combination plot (10) contour (1) cross bar (1) cumulative (1) curve (3) dendrogram (3) density (13) diagram (2) distribution (9) attribution (1) dot plot (1) double axis (1) ellipse (2) error bar (6) factor plot (3) fluctuation diagram (1) google (1) grid plot (1) heatmap (20) heatmap plot (1) histogram (11) hive (1) kernel density (4) ladder plot (2) large data points (4) level plot (1) line plot (3) line range (1)

<http://rgraphgallery.blogspot.fr/>



<https://d3js.org/>



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DataViz is a key step in data science

Dataviz is **not** trivial

R = **amazing** graphing tool

Get **inspired** & **contribute**!