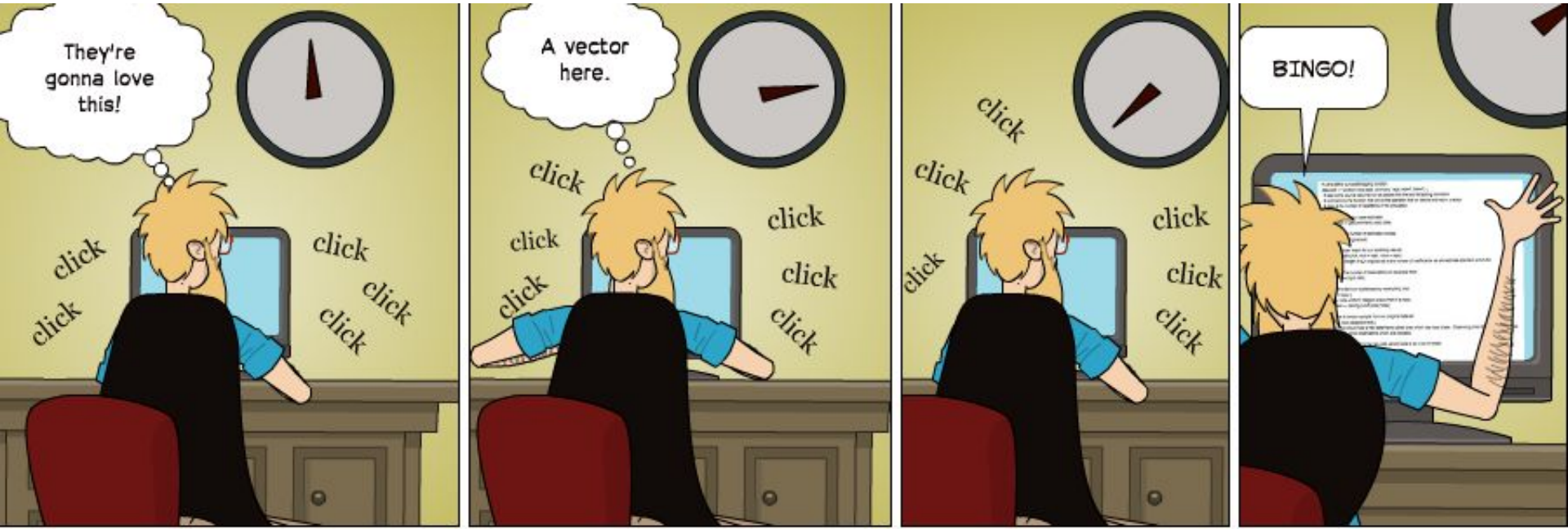

They're gonna love this!
click
click
click
click
click
click
A vector here.
click
click
click
click
click
click
click
click
click
click
click
click
BINGO!

fsmart

Resources

RStudio: A beautiful, free, full-featured IDE.

R studio

Thuner (2014): Introduction to R

obj <- function(arg1 = values, arg2 = values, ...)

01 Object to save the information (User)

02 Function name (Package)

03 Function Argumen (Package)

04 Values for the arguments (User)

Ctrl + Enter	Run
Ctrl + L	Clean
Alt + -	Assign
Tab	Suggestion
F1	Help

Function Structure!!

HSD.test {agricolae}

Multiple comparisons: Tukey

Description

It makes multiple comparisons of treatments by means of Tukey. The level by alpha default is 0.05.

Usage

```
HSD.test(y, trt, DFerror, MSerror, alpha = 0.05, group=TRUE, main = NULL,console=FALSE)
```

Arguments

y	model(aov or lm) or answer of the experimental unit
trt	Constant(only y=model) or vector treatment applied to each experimental unit
DFerror	Degree free
MSerror	Mean Square Error
alpha	Significant level
group	TRUE or FALSE
main	Title
console	logical, print output

Details

It is necessary first makes a analysis of variance.

Value

y	class (aov or lm) or vector numeric
trt	constant (only y=model) or vector alfanumeric
DFerror	Numeric
MSerror	Numeric
alpha	Numeric
group	Logic
main	Text

Author(s)

Felipe de Mendiburu

Examples

```
library(agricolae)
data(sweetpotato)
model<-aov(yield~virus, data=sweetpotato)
out <- HSD.test(model,"virus", group=TRUE,console=TRUE,
main="Yield of sweetpotato\nDealt with different virus")
#stargraph
bar.group(out$groups,ylim=c(0,45),density=4,border="blue")
#endgraph
out<-HSD.test(model,"virus", group=FALSE)
means<-out$means
```

Package	Function
Base	str() summary() choose.file() aov()

Package	Function
FactoMiner	PCA()
ggplot2	Graphics
corrplot	Correlation Plot

Package	Function
gsheet	gsheet2tbl()
open xlsx	read.xlsx()

Package	Function
doBy	summaryBy()
tidyr	spread() gather() separate()
dplyr	filter() select() mutate()

Package	Function
agricolae	SNK.test() HSD.test() correlation()

Packages and principal functions!!

RClass.R

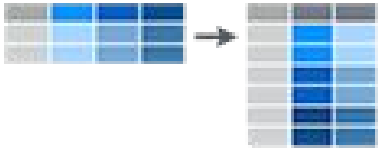
Source on Save | Run | Source

```
#### Import Data Google Spreadsheets ####

library(gsheets)

url <- "https://docs.google.com/spreadsheets/d/1sfy6XaCAYKqU1siOr9VP_I5wAzRBjjMmdr1nK387J0s/edit#gid=1326844779"
fb <- gsheet2tbl(url)
fb <- as.data.frame(fb)



#### Import Data Excel ####

library(openxlsx)

fb <- read.xlsx(choose.files(), sheet = "MV")
```

Data Import

Organize Your Data for Easier Analyses in R

gather()



spread()

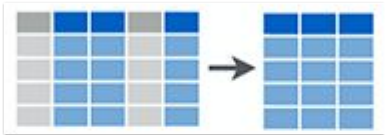
separate()

unite()

- **gather()**: collapse multiple columns into key-pair values
- **spread()**: reverse of gather. Separate one column into multiple
- **separate()**: separate one column into multiple
- **unite()**: unite multiple columns into one

tidyr R package

Subsetting Data Frame Columns in R



- **select()**: Select columns by name or helper functions
- **Helper functions:** starts_with(), ends_with(), contains(), matches(), one_of()

Subsetting Data Frame Rows in R

- **filter()**: Select rows based on some criteria
- **sample_n()** and **sample_frac()**: Select random rows
- **top_n()**: Select top elements based on values

Computing and Adding new Variable(s) to a Data Frame

- **dplyr::mutate()**: Computes and adds new variables. Preserves existing variables.

CALIDAD DE LOS DATOS

LOS ERRORES APARENTEMENTE PEQUEÑOS DEL MUESTREO, LA MEDICIÓN Y EL REGISTRO DE DATOS PUEDEN ACABAR CON CUALQUIER ANÁLISIS. **R. A. FISHER**, ESTUDIOSO DE LA GENÉTICA Y FUNDADOR DE LA ESTADÍSTICA MODERNA, NO SÓLO DISEÑABA Y ANALIZABA LA CRÍA DE ANIMALES, SINO QUE TAMBIÉN LIMPIABA SUS JAULAS Y CUIDABA DE ELLOS, PORQUE SABÍA QUE LA PÉRDIDA DE UN ANIMAL INFLUIRÍA EN SUS RESULTADOS.