

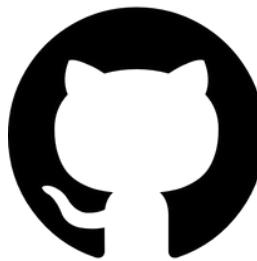
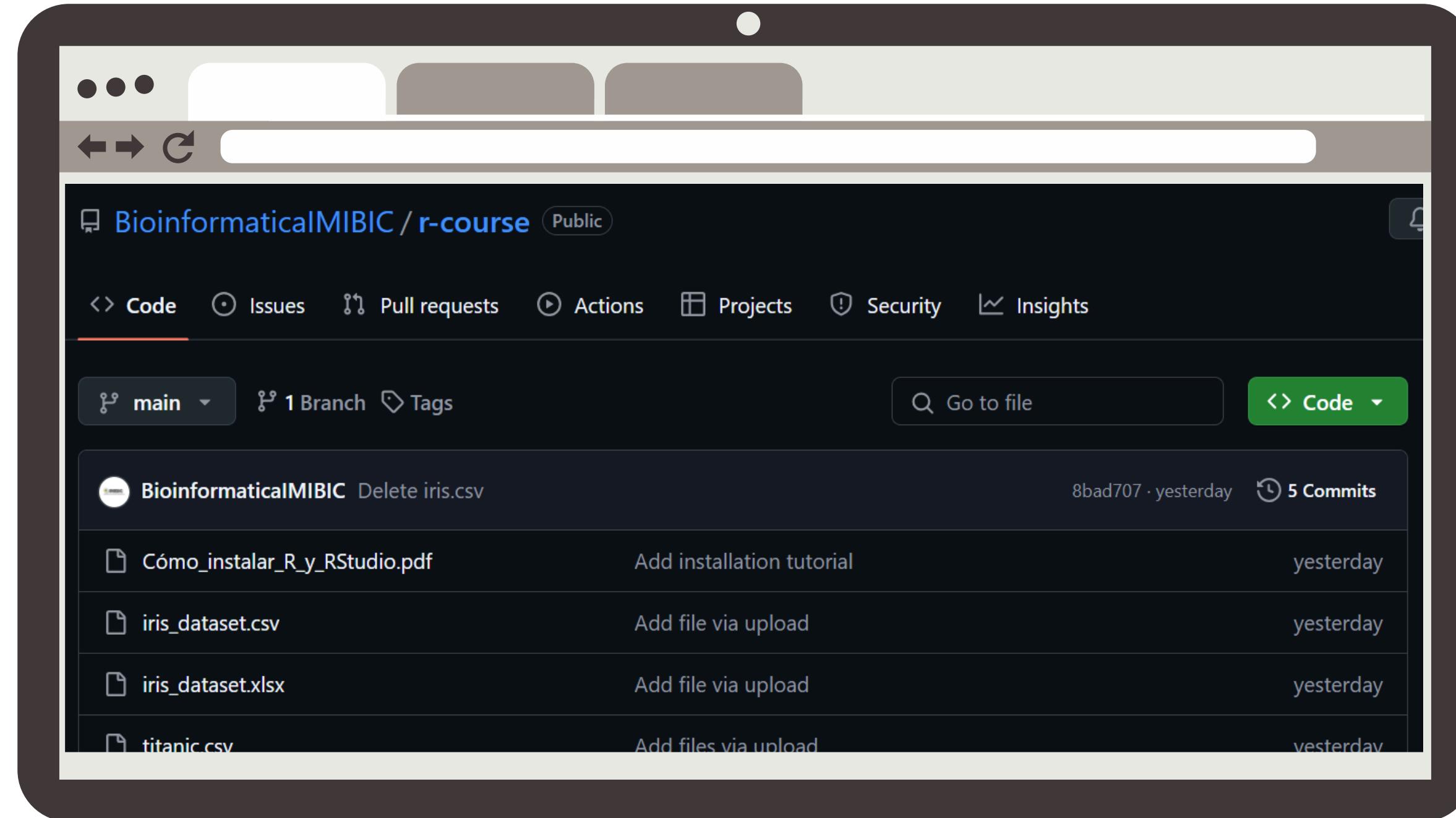
```
<!--Estudio IMIBIC-->
```

R para Todos: El poder para explotar tus Datos {

<Por="Adrián Santiago Ortiz"/>

}

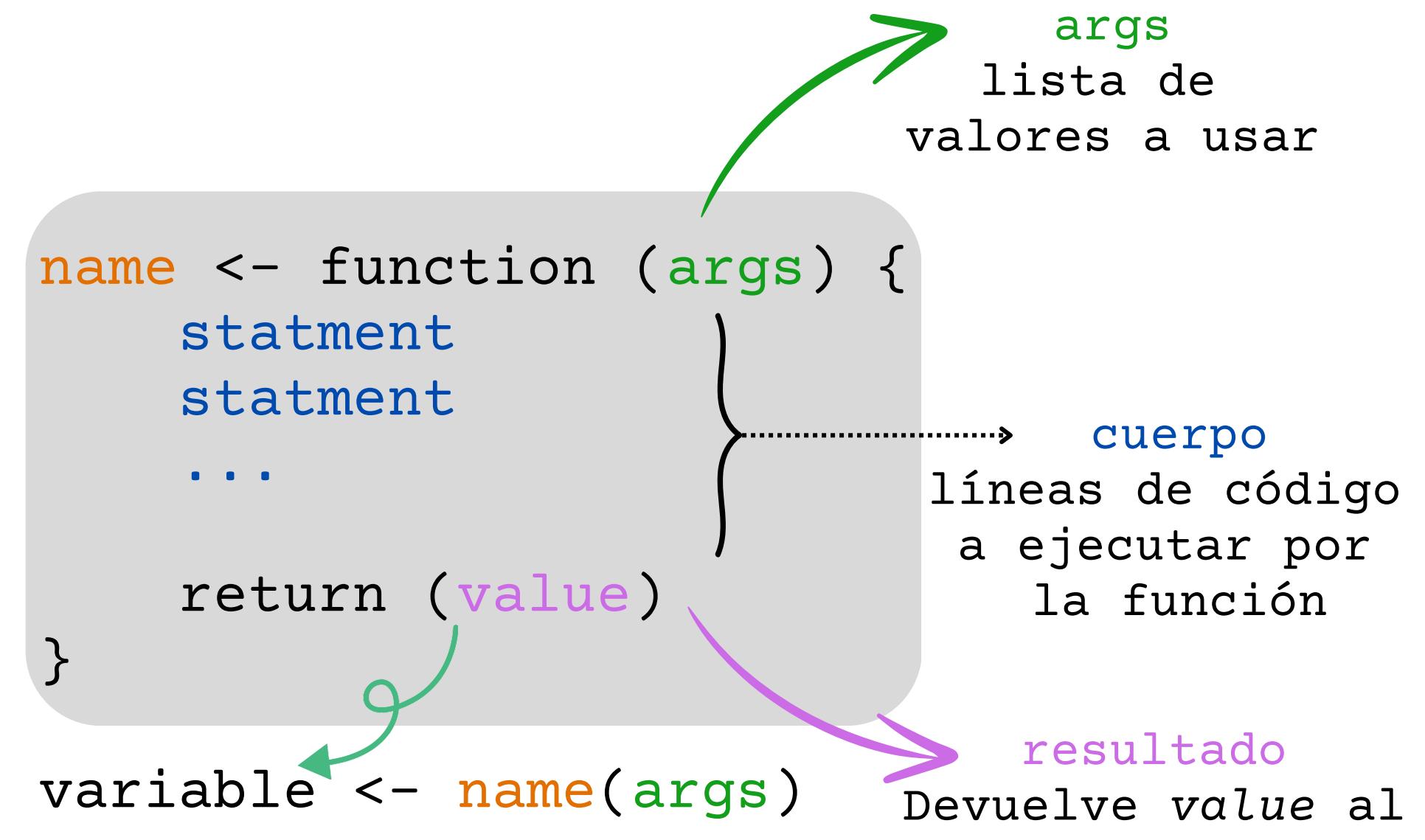
Material disponible



<https://github.com/BioinformaticalMIBIC/r-course>

Repaso sesión 3: sintaxis de funciones

```
calcular_IMC <- function(peso = 70,  
                           altura = 1.73) {  
  
  # Calcular el IMC  
  imc <- peso / (altura ** 2)  
  
  return(imc)  
}  
  
calcular_IMC(1.73, peso = 70)  
calcular_IMC(, 1.73)  
calcular_IMC(1.73, 70)  
calcular_IMC()
```



Contenidos

01 Introducción a R y Rstudio

02 Tipos de datos

03 Operadores en R

04 Tipos de objetos y operaciones

05 Estructuras de control y flujo de ejecución

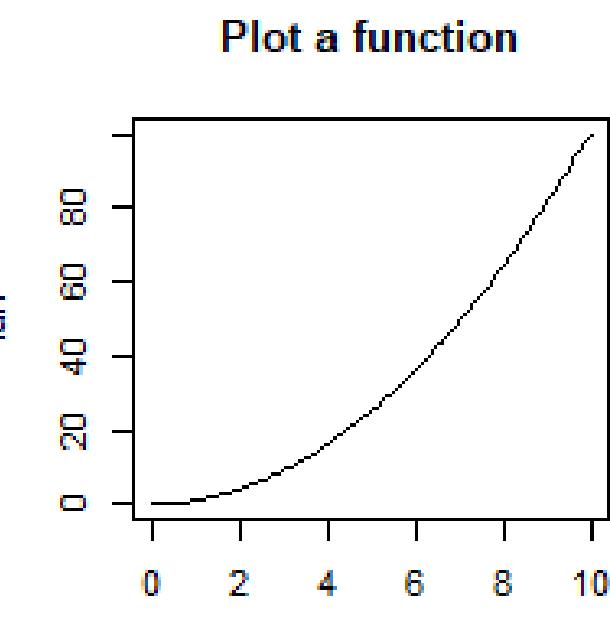
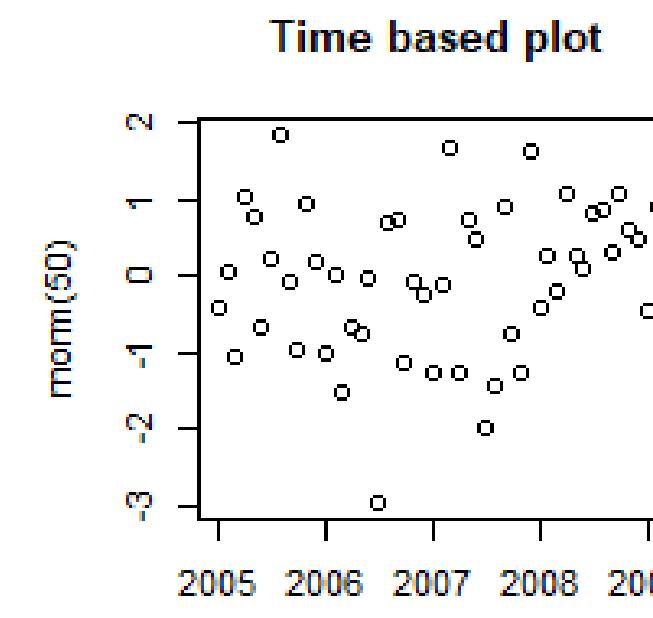
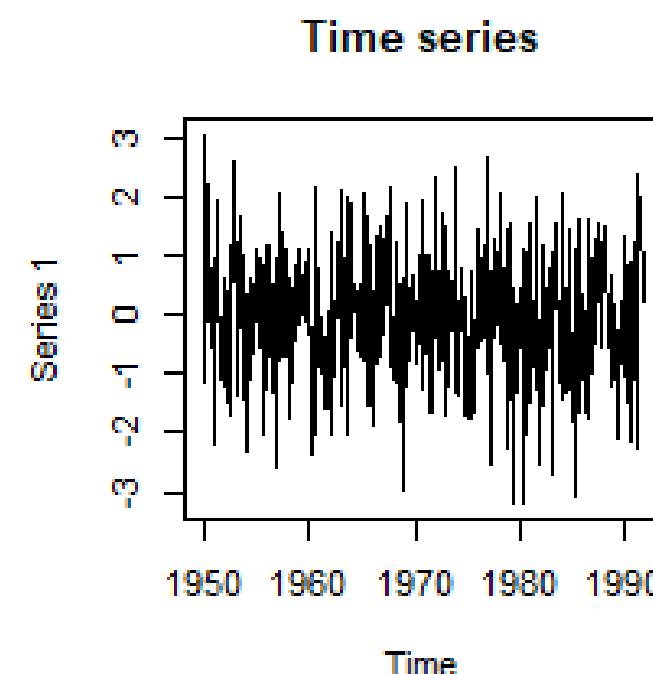
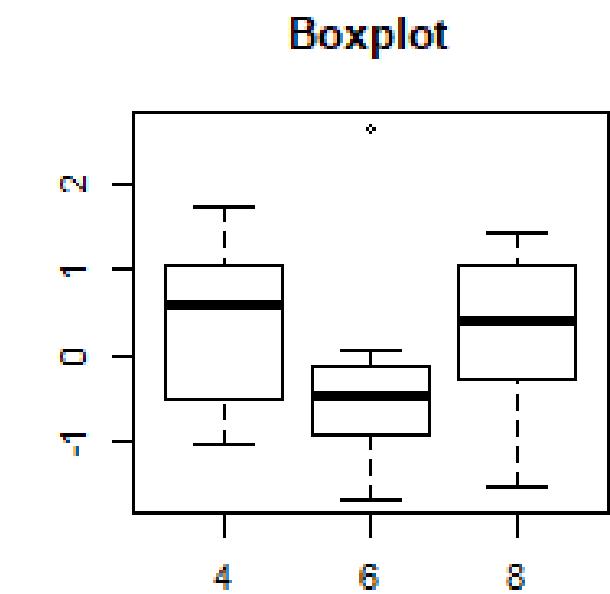
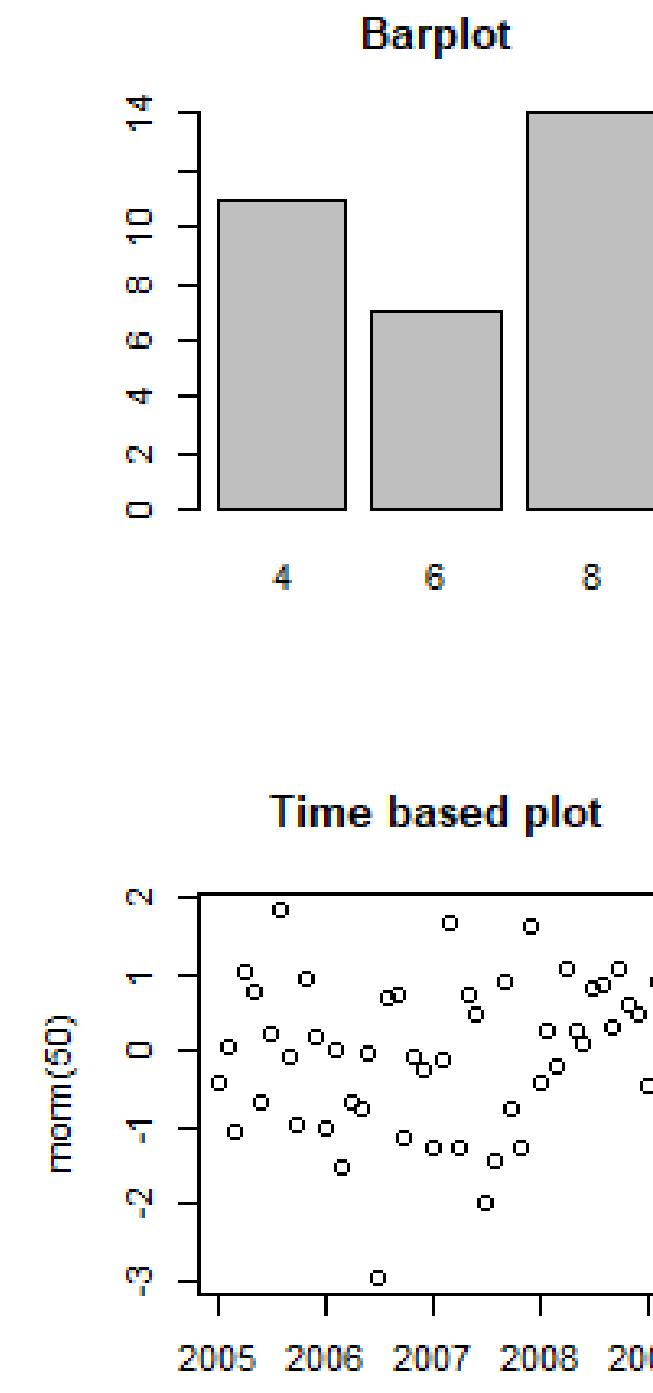
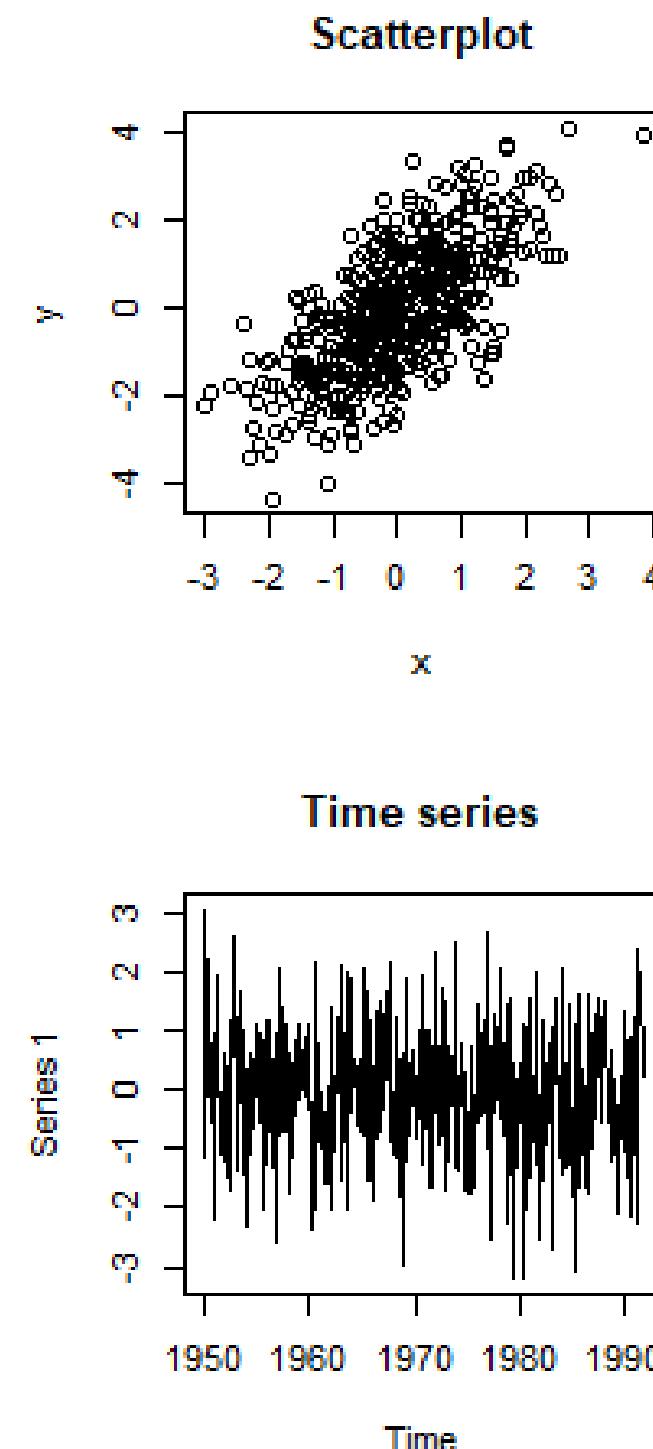
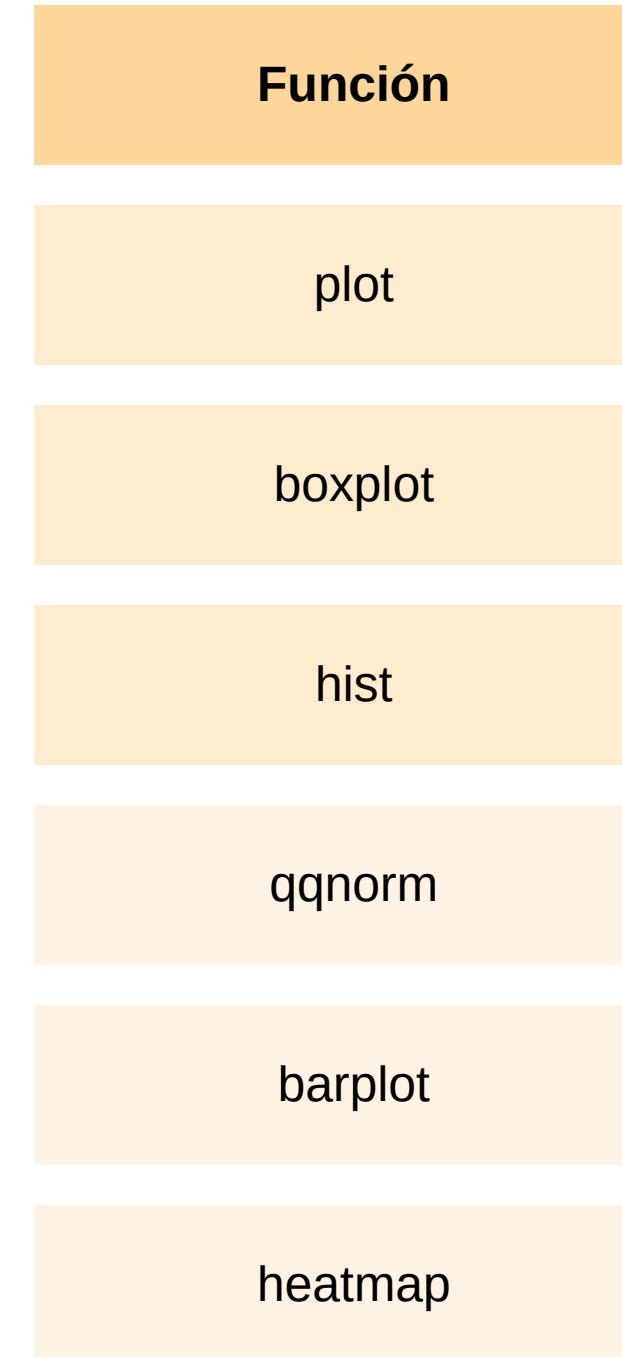
06 Creación de funciones

07 Visualización de resultados en gráficos

Contenidos

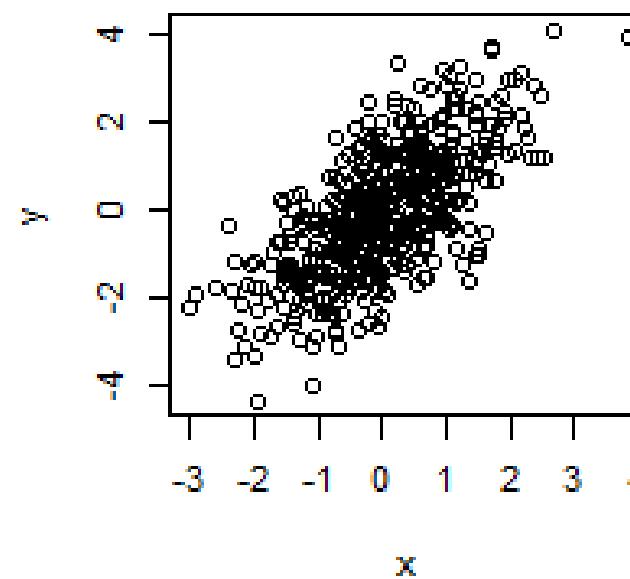
01
02
03
04
05
06
07 Visualización de resultados en gráficos

Función plot() y derivadas

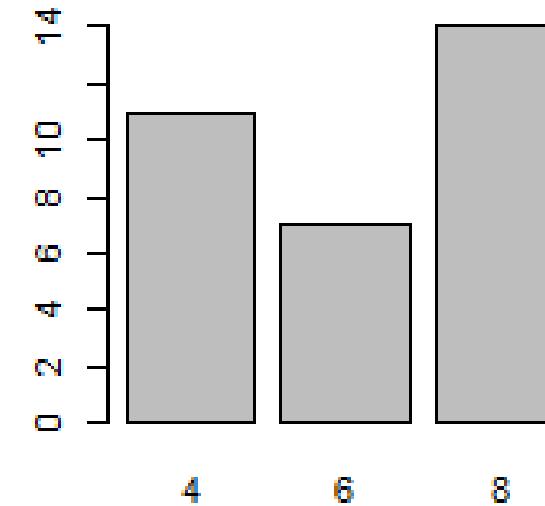


Función plot() y derivadas

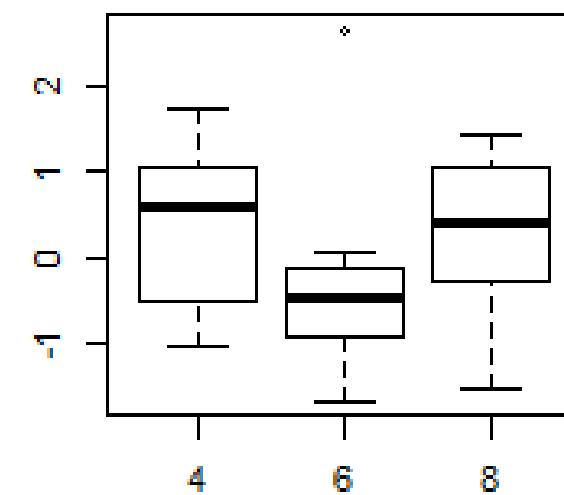
Scatterplot



Barplot



Boxplot



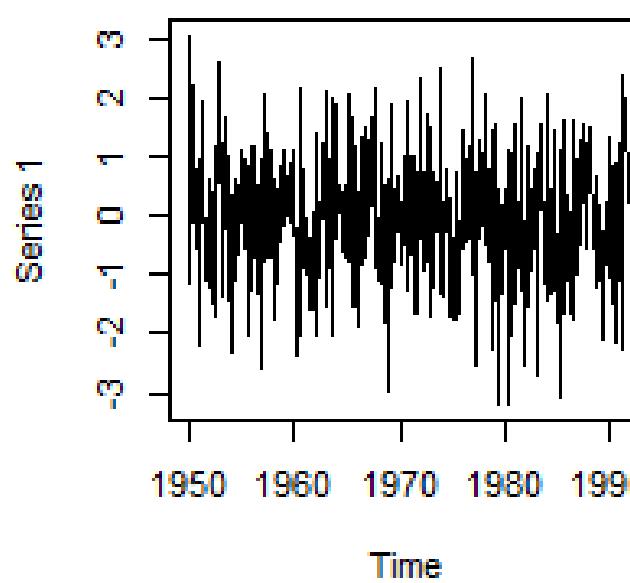
Función y argumentos

plot(x, y)

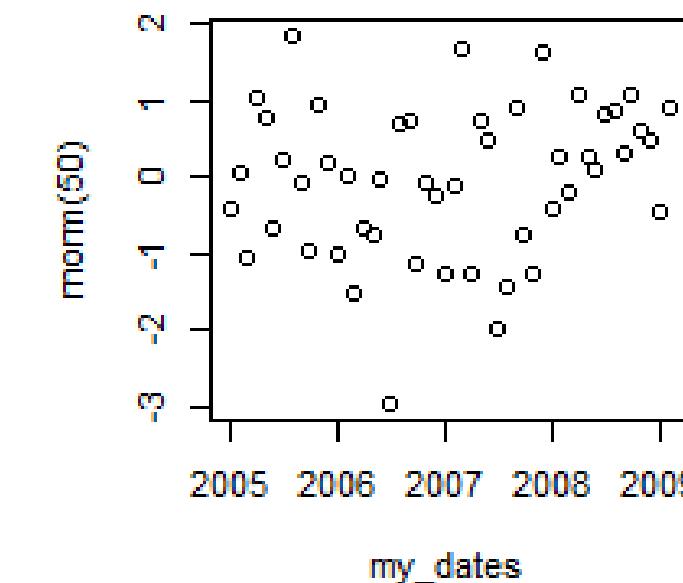
Descripción

x e y son vector numéricos
Diag. de dispersión (scatterplot)

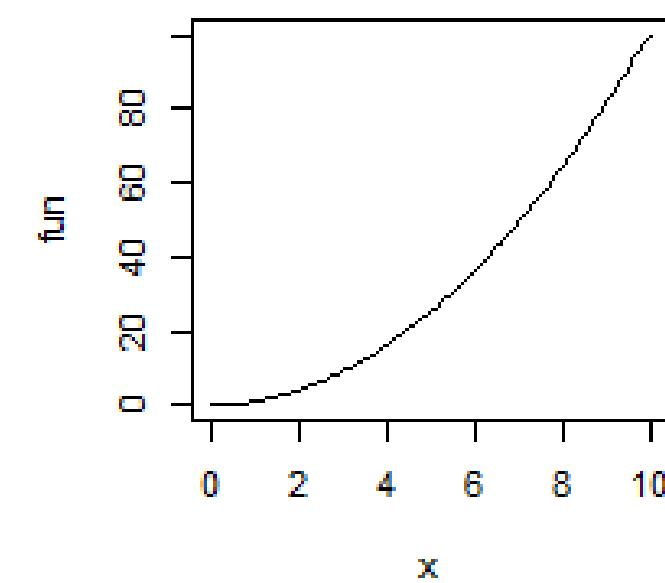
Time series



Time based plot



Plot a function



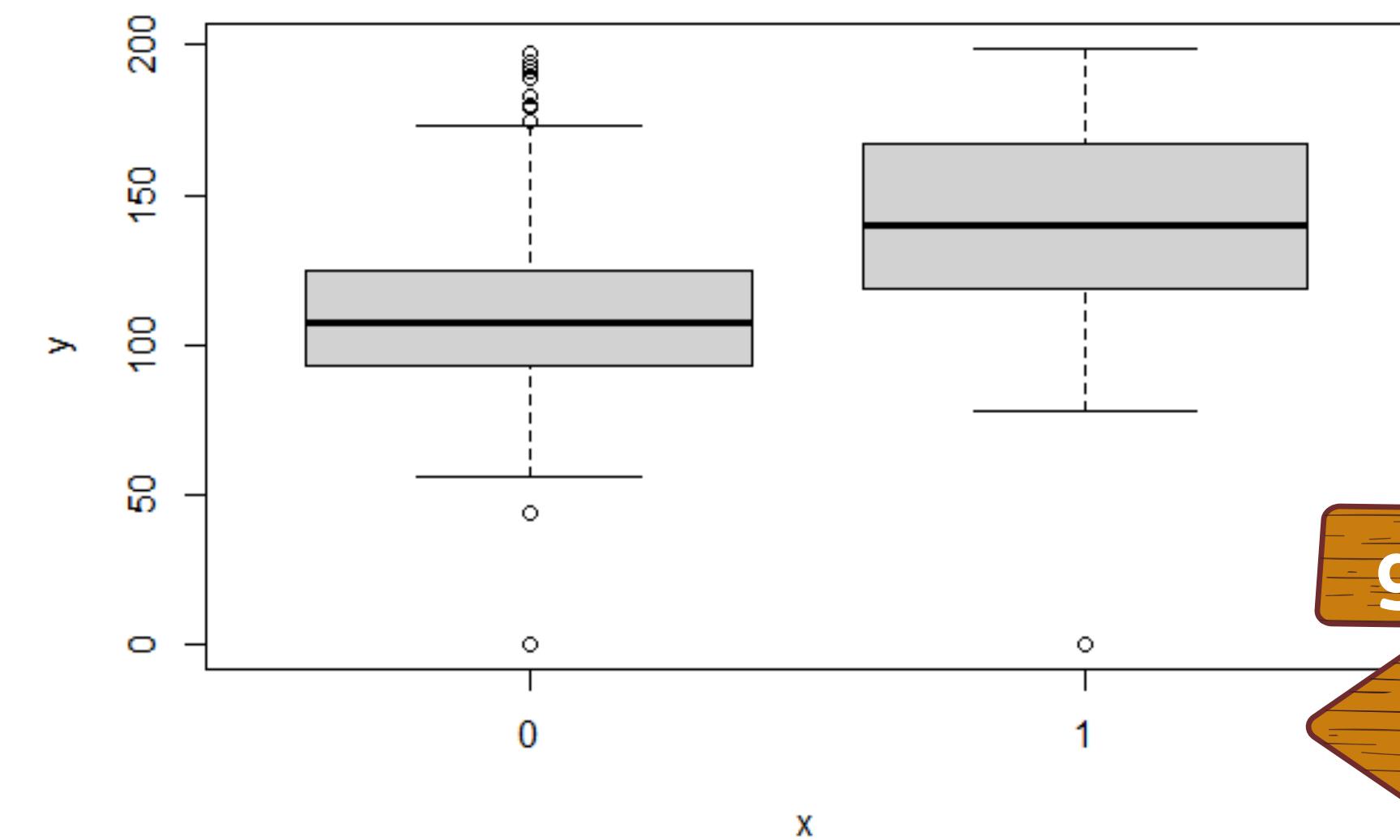
plot(factor, y)

plot(data_frame)

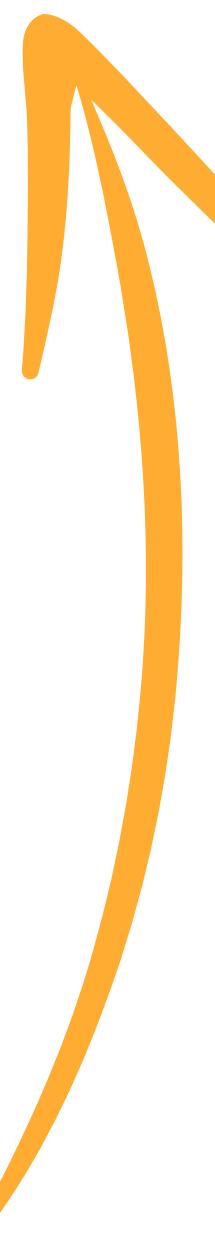
Boxplot del vector numérico y los diferentes niveles del factor

Gráficos por pares para todas las combinaciones de las variables numéricas

plot() vs ggplot()



Paquete `ggplot2`



Theme

Aspecto visual general del gráfico

Statistics

Transformaciones de los datos

Geometries

Tipo de gráfico

Data

El dataset de interés



Coordinates

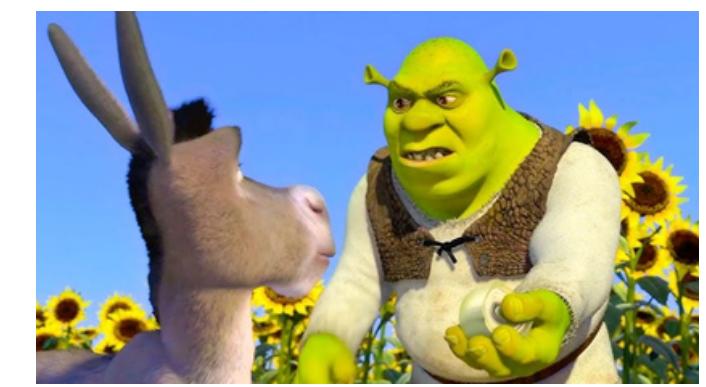
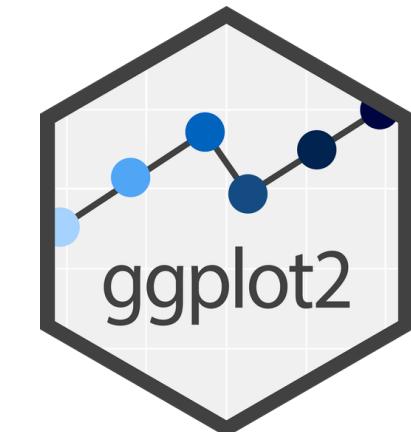
¿Sistema cartesiano o polar?

Facets

¿Uno o múltiples gráficos

Aesthetics

Variables que utilizar



Shrek (2001)

Paquete ggplot2

```
ggplot(data= 1 , mapping=aes( 2 )) + geom_ 3 ()
```

Data
El dataset de interés



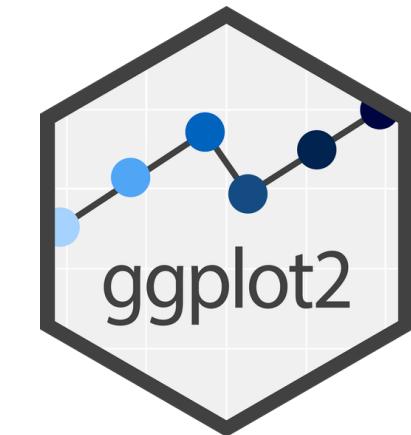
Data frame

Can be
different

Siempre un Data.frame

m...		
n		
:		

```
data.frame(x = 1:3,  
           y = 5:7)
```



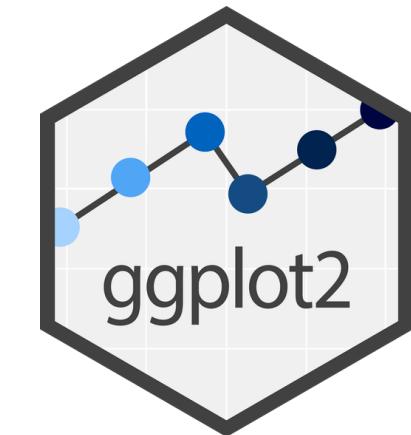
Paquete `ggplot2`

```
ggplot(data= 1 , mapping=aes( 2 )) + geom_ 3 ()
```



Se definen los **ejes x e y**.
Opcional: color, tamaño,
relleno y forma.

Aesthetics
Variables que utilizar



Paquete ggplot2

```
ggplot(data= 1 , mapping=aes( 2 )) + geom_ 3 ()
```

Geometries
Tipo de gráfico



geom_point()

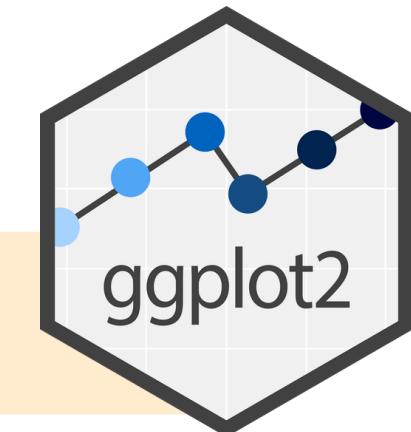
geom_boxplot()

geom_bar()

geom_histogram()

geom_smooth()

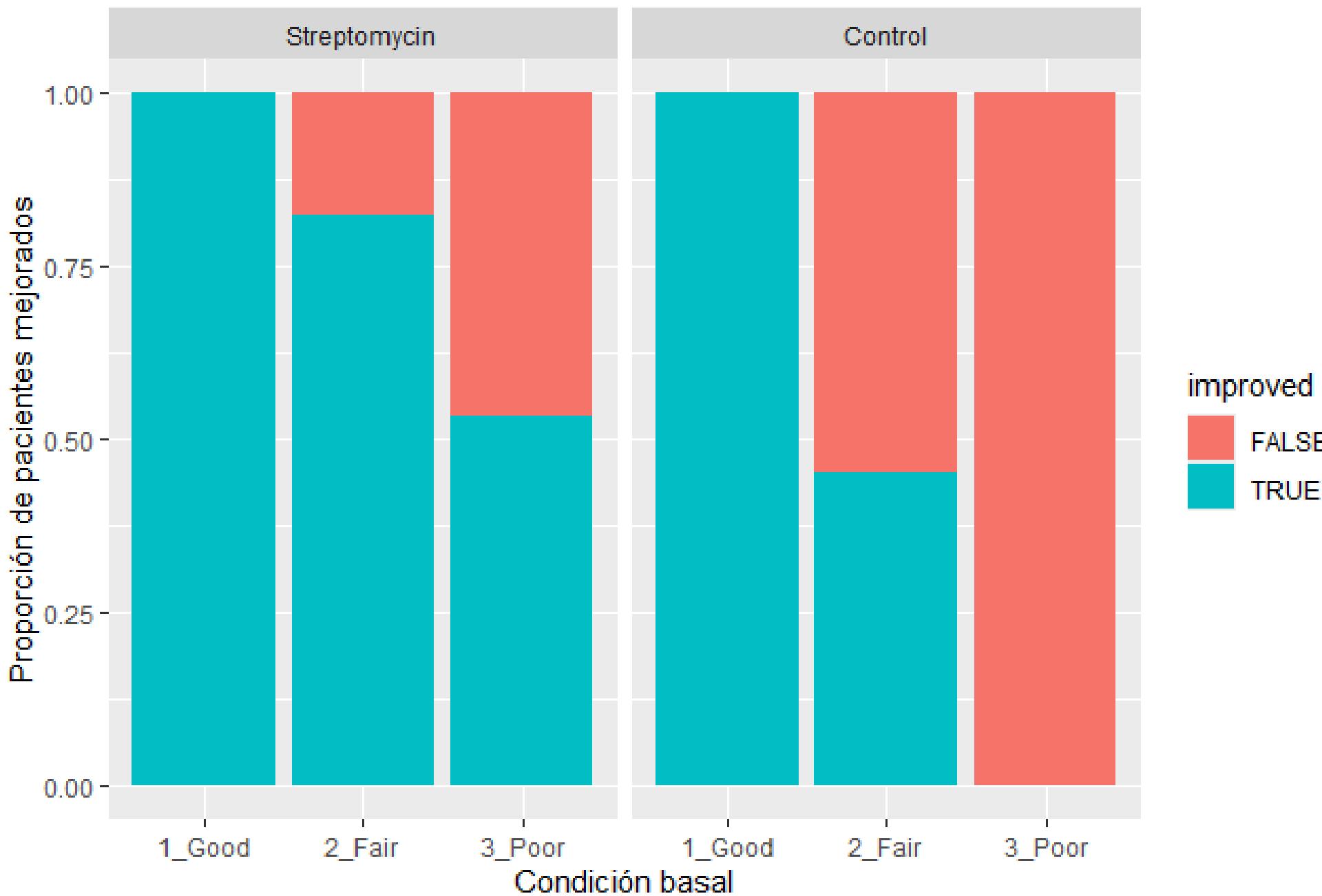
geom_density()



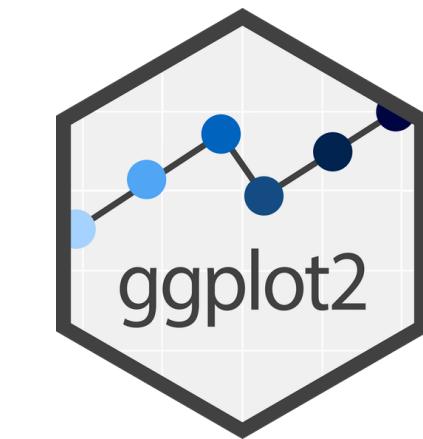
Paquete ggplot2

facet_wrap()

Porcentaje de mejora según condición basal y tratamiento



Facets
¿Uno o múltiples
gráficos



Paquete ggplot2

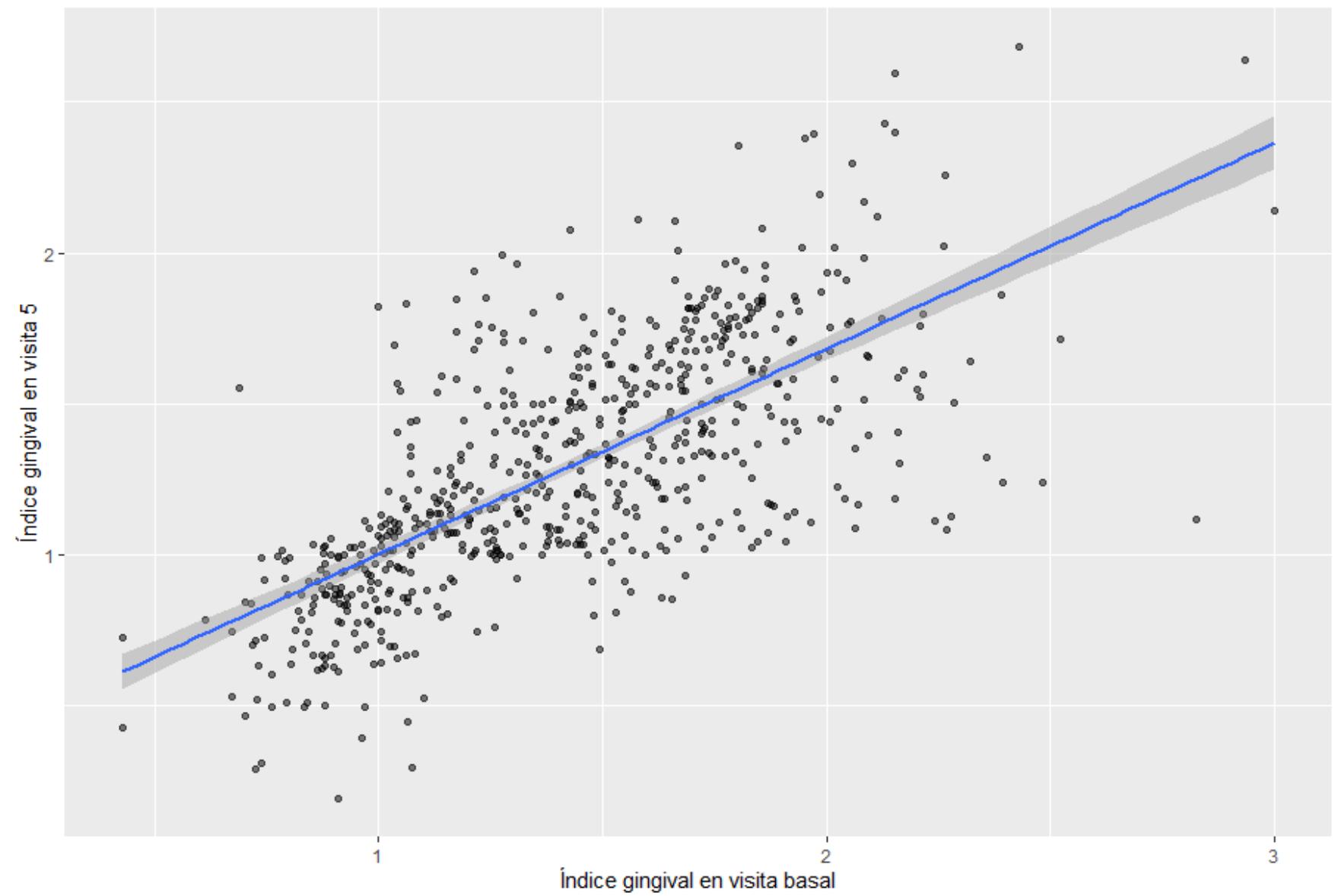
Statistics
Transformaciones de los datos



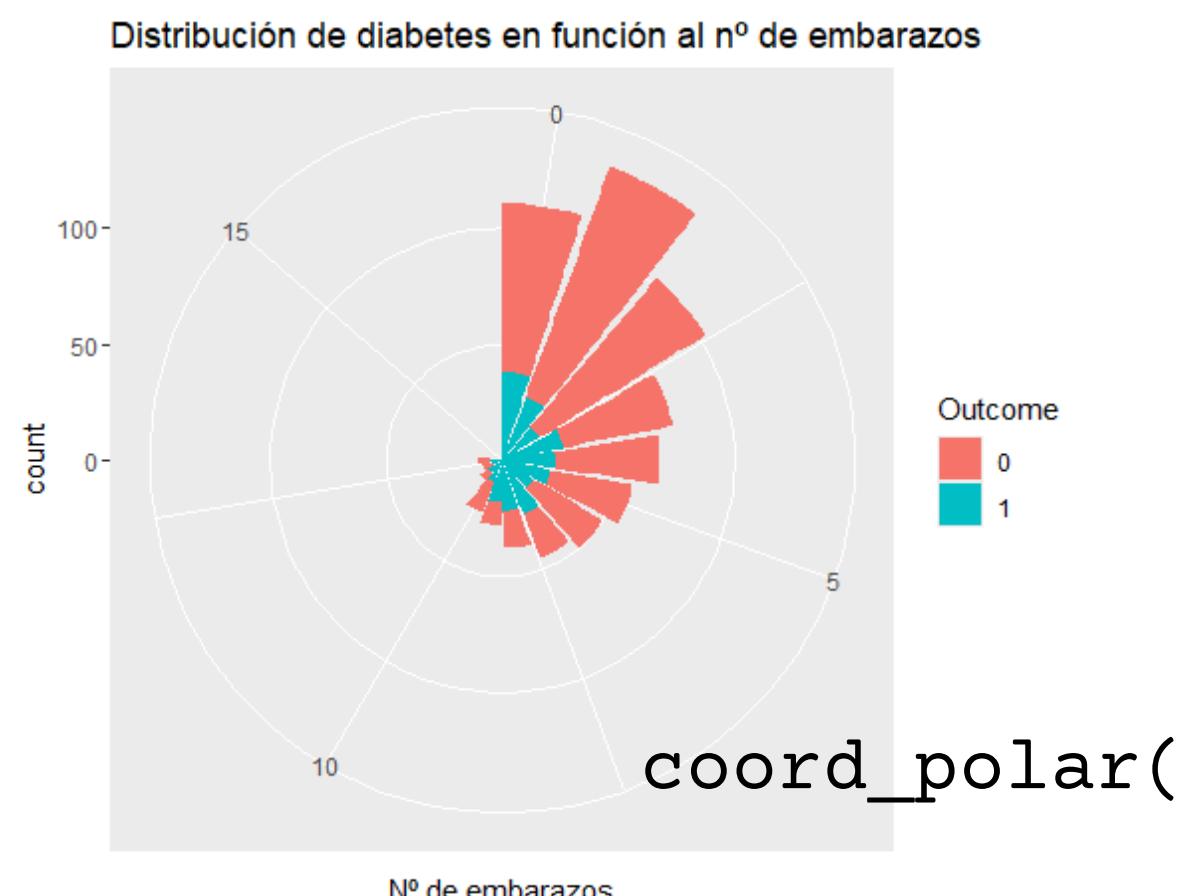
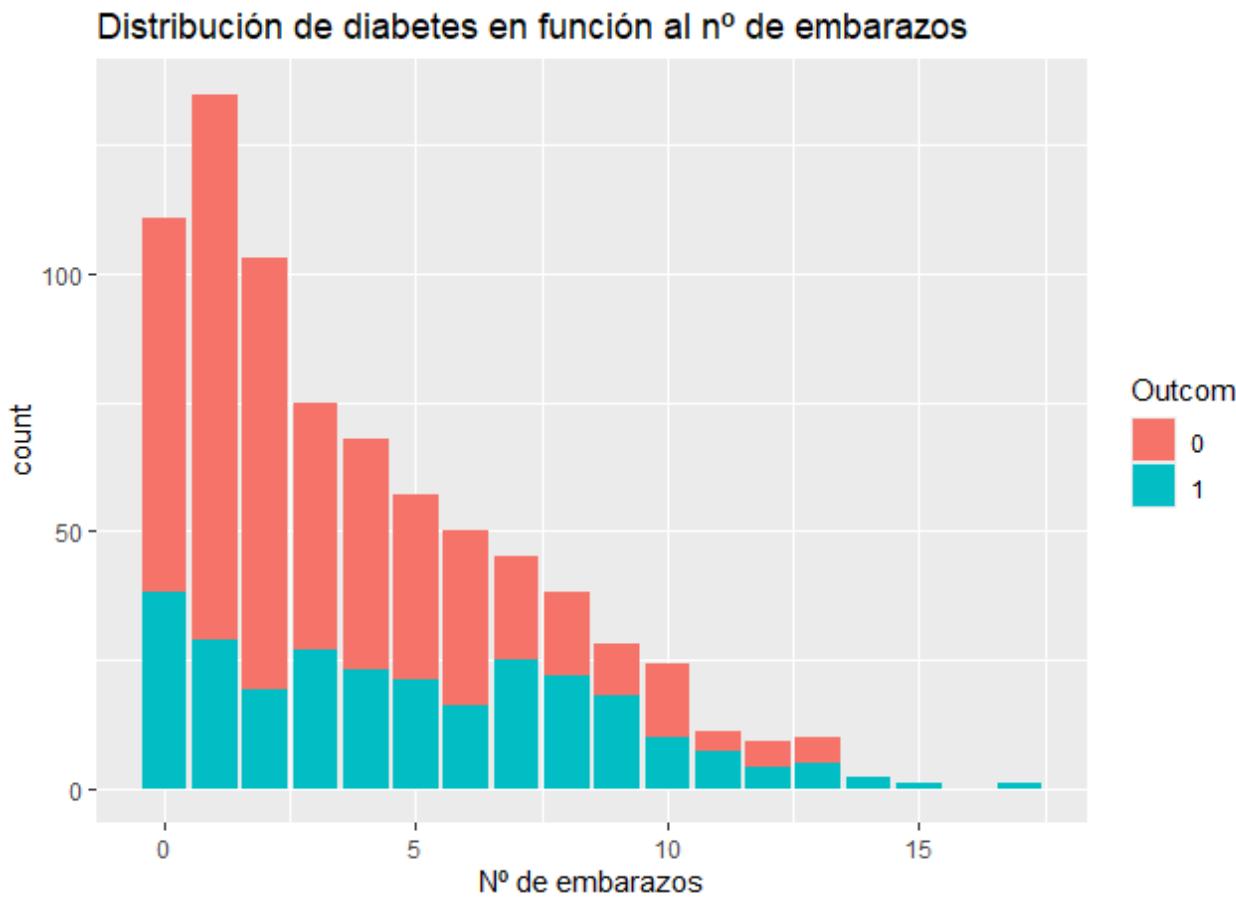
Ejemplo:

```
ggplot(opt, aes(x = BL.GE, y = V5.GE)) +  
  geom_point(alpha = 0.5) +  
  geom_smooth(method = "lm", se = TRUE) +  
  labs(x = "Índice gingival en visita basal",  
       y = "Índice gingival en visita 5",  
       title = "Cambio del índice gingival entre visitas")
```

Cambio del índice gingival entre visitas



Paquete ggplot2

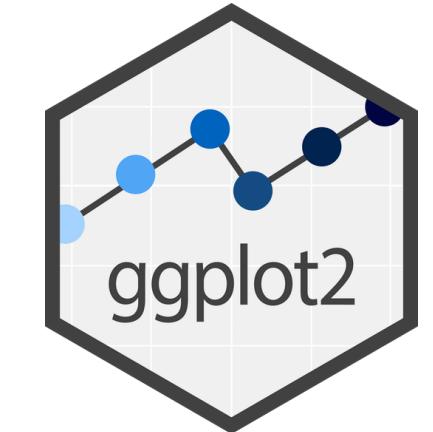


Coordinates
¿Sistema cartesiano o
polar?

`coord_flip()`

`xlim()` y `ylim()`

`coord_cartesian()`



Paquete ggplot2

Theme

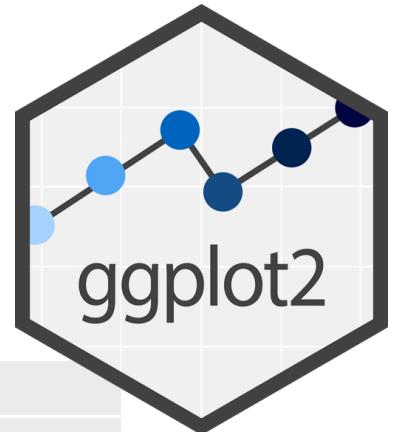
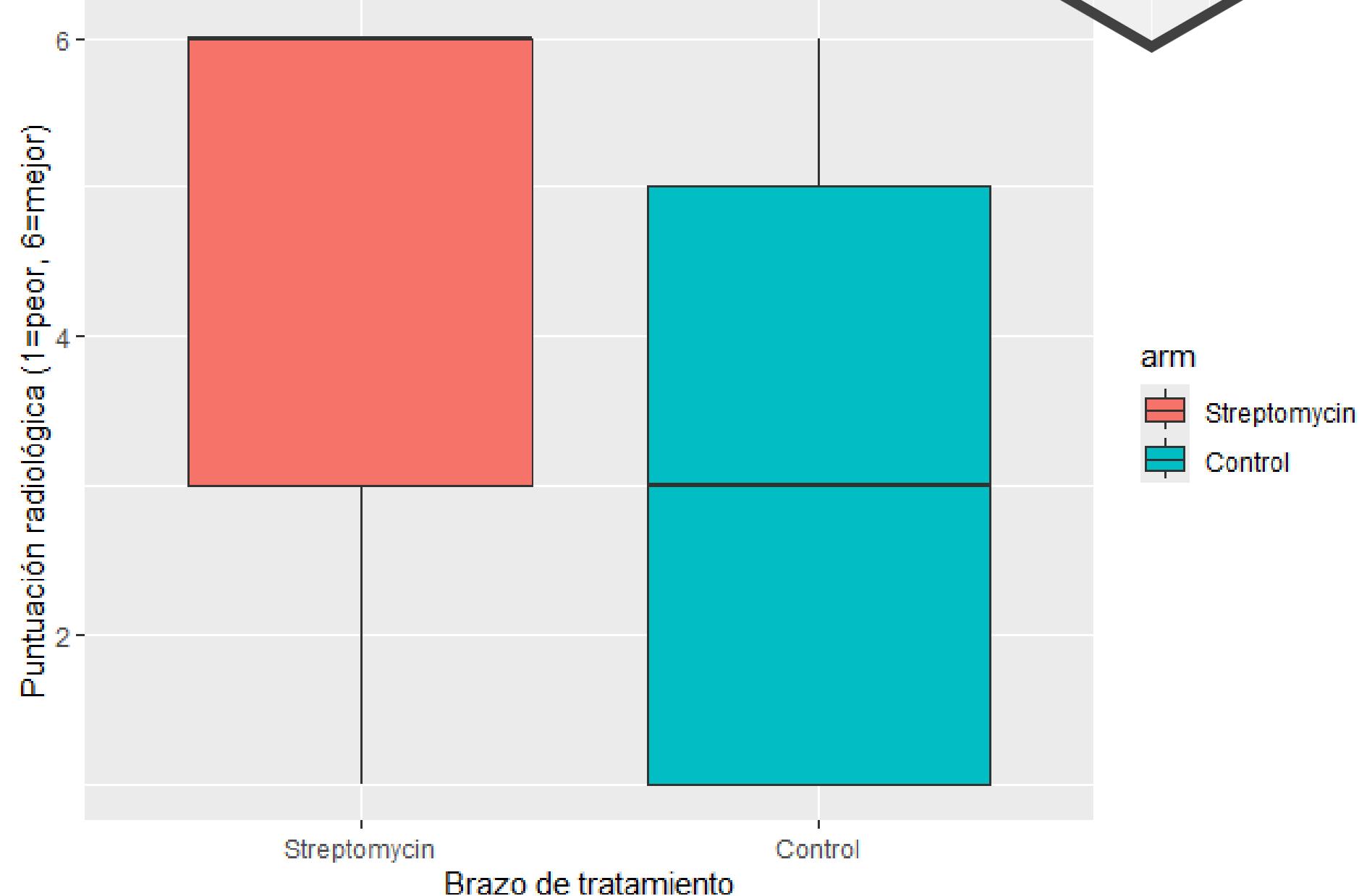
Aspecto visual general del gráfico

Personalización de:

- Títulos
- Textos
- Ejes
- Leyenda
- Fondo y el panel



Resuesta radiológica según brazo de tratamiento



<!--Estudio IMIBIC-->

Enhorabuena {

<"Has superado la cuarta
sesión"/>

}

UCAIB BIOINFORMÁTICA Y
BIOESTADÍSTICA
(IMIBIC)



```
<!--Estudio IMIBIC-->
```

Gracias {

```
<Por="Adrián Santiago"/>
```

}