Intro to R

Data Visualization with Esquisse

Esquisse Package

```r
# install.packages("esquisse")
library(esquisse)
```

Esquisse Package

The `esquisse` package is helpful for getting used to creating plots in R.

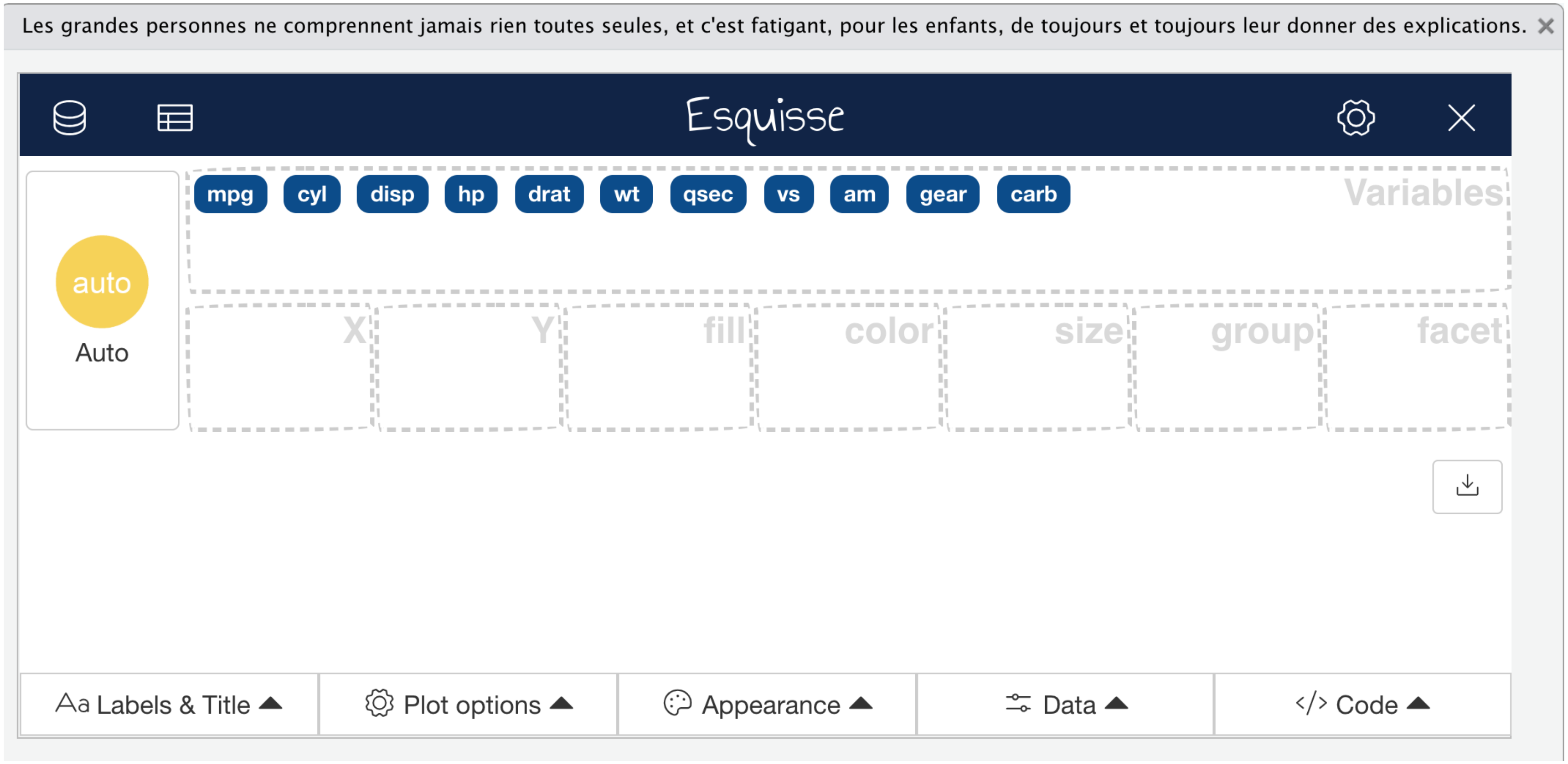
It is an interactive tool to help you in RStudio.

It's super **nifty**!

Starting a plot

Using the `esquisser()` function you can start creating a plot for a `data.frame` or `tibble`. That's it!

```
esquisser(mtcars)
```



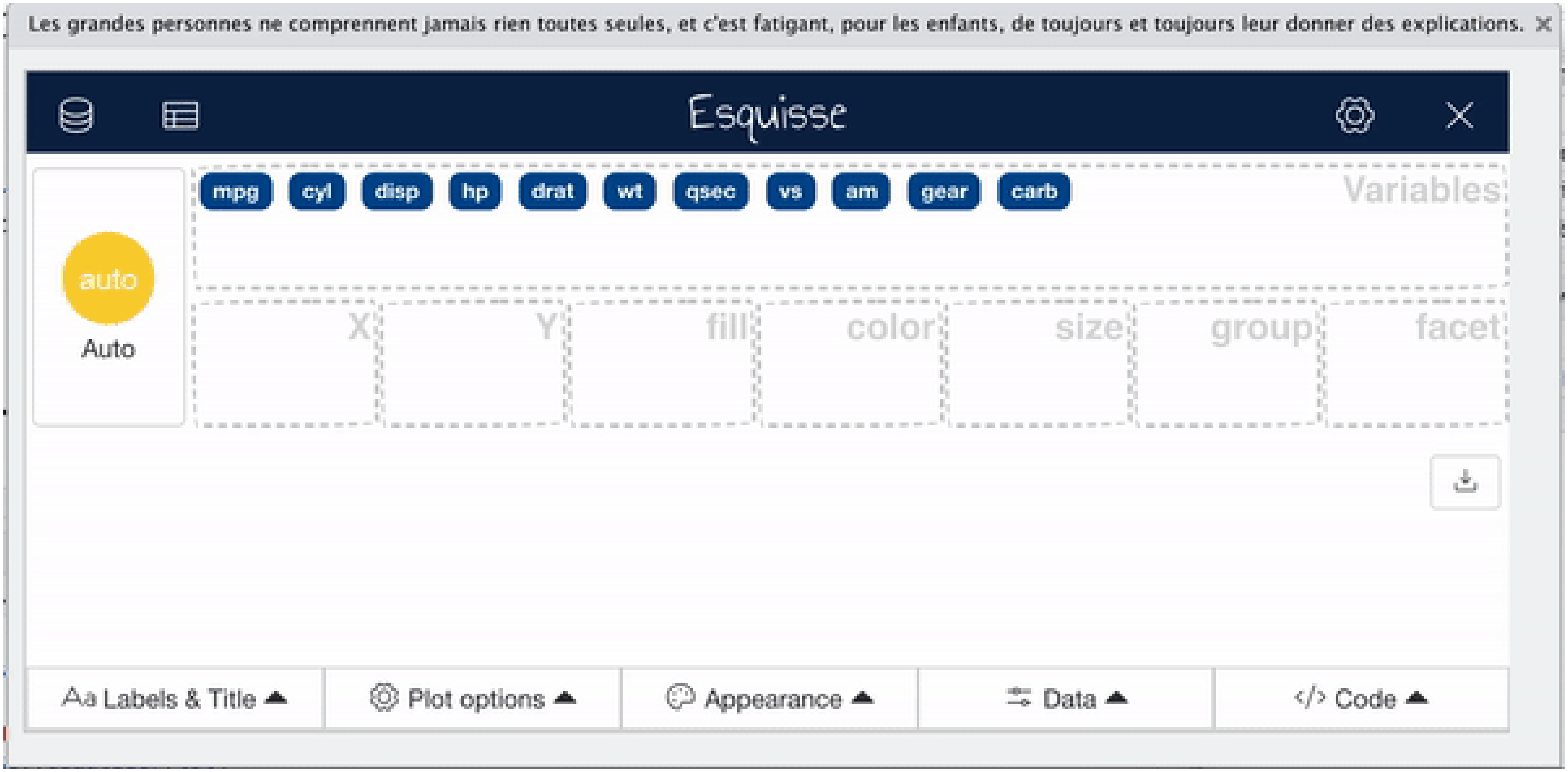
Les grandes personnes ne comprennent jamais rien toutes seules, et c'est fatigant, pour les enfants, de toujours et toujours leur donner des explications. ✕

Show the plot in the browser

```
esquisse::esquisser(iris, viewer = "browser")
```

Select Variables

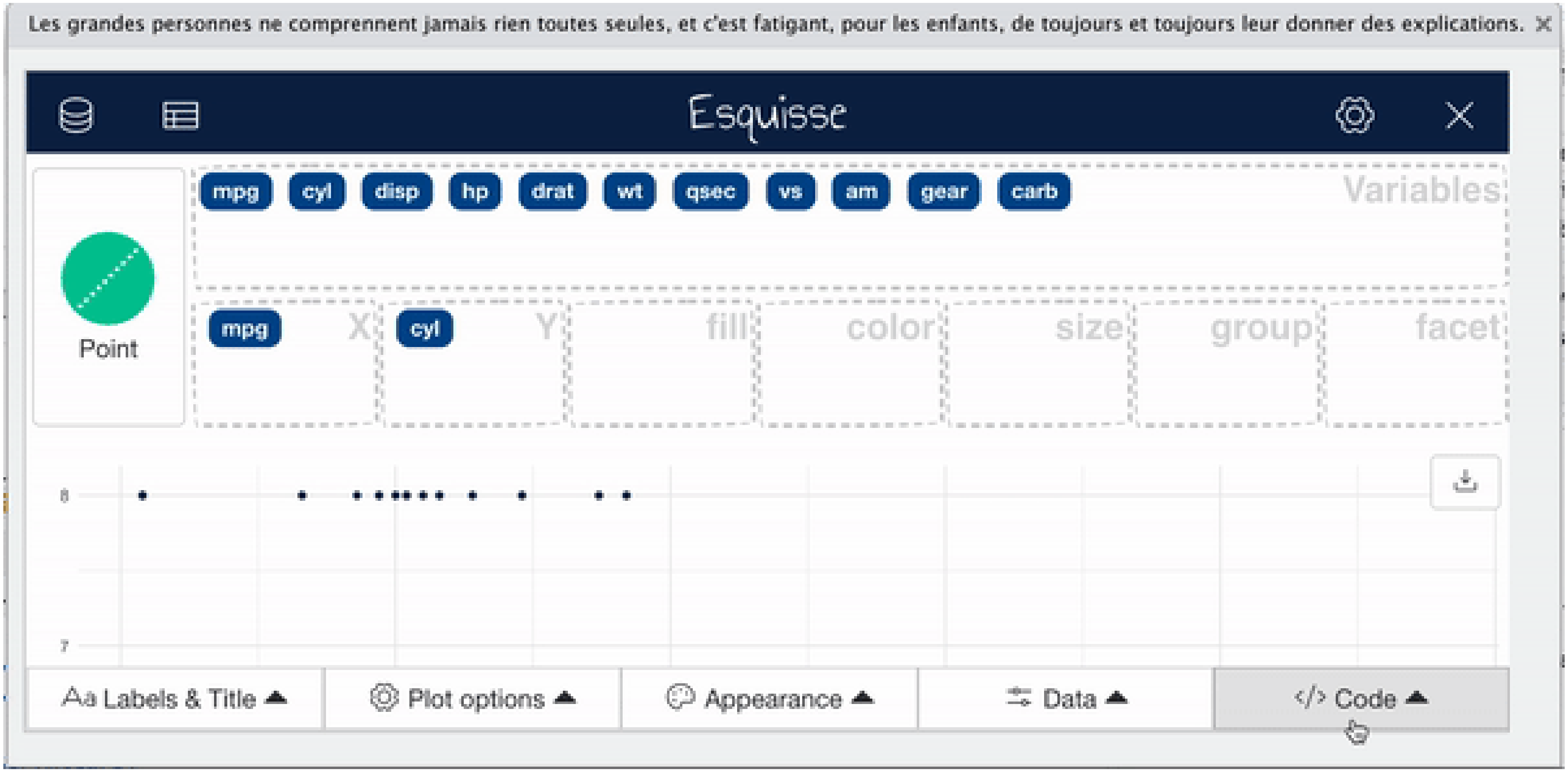
To select variables you can drag and drop variables to the respective axis that you would like the variable to be plotted on.



Les grandes personnes ne comprennent jamais rien toutes seules, et c'est fatigant, pour les enfants, de toujours et toujours leur donner des explications.

Find code

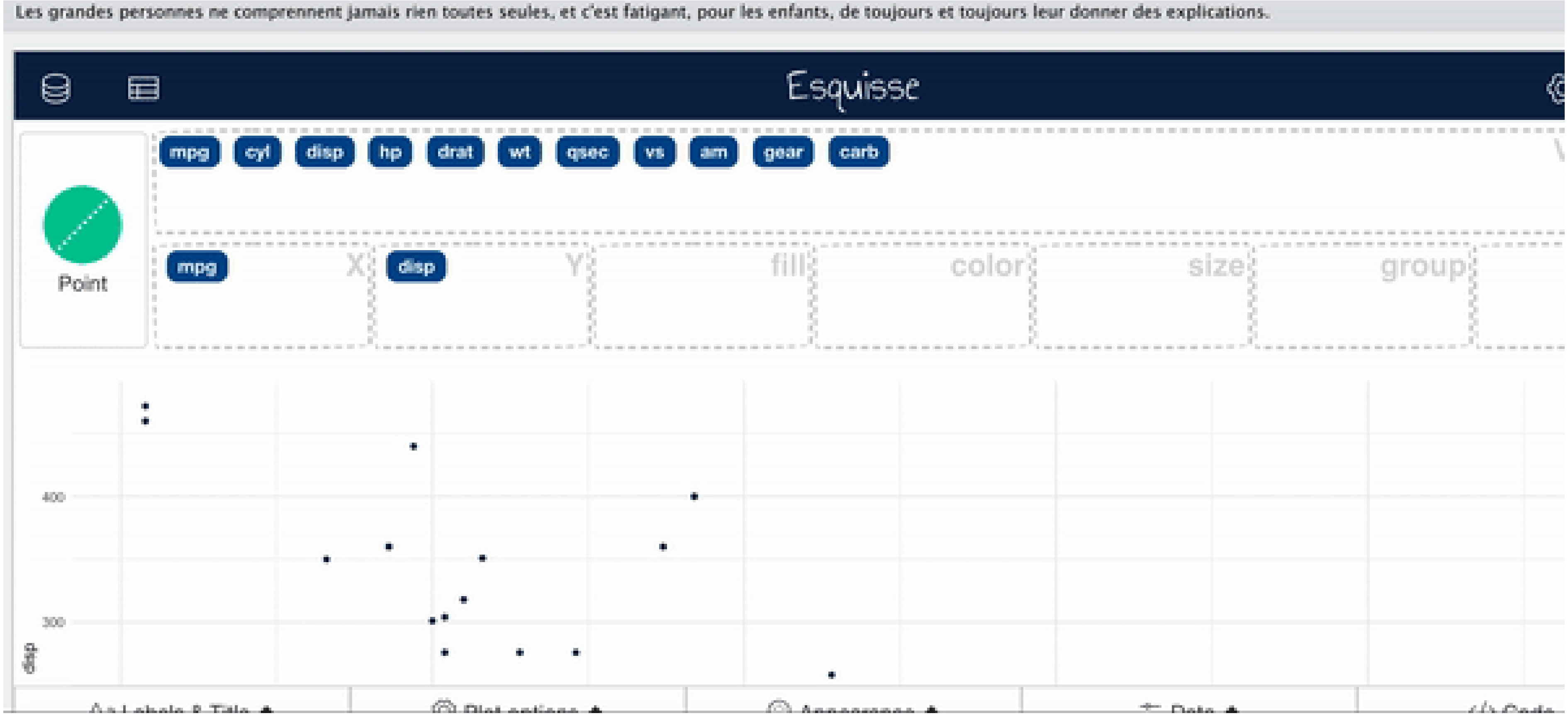
To select variables you can drag and drop variables to the respective axis that you would like the variable to be plotted on.



Les grandes personnes ne comprennent jamais rien toutes seules, et c'est fatigant, pour les enfants, de toujours et toujours leur donner des explications.

Change plot type

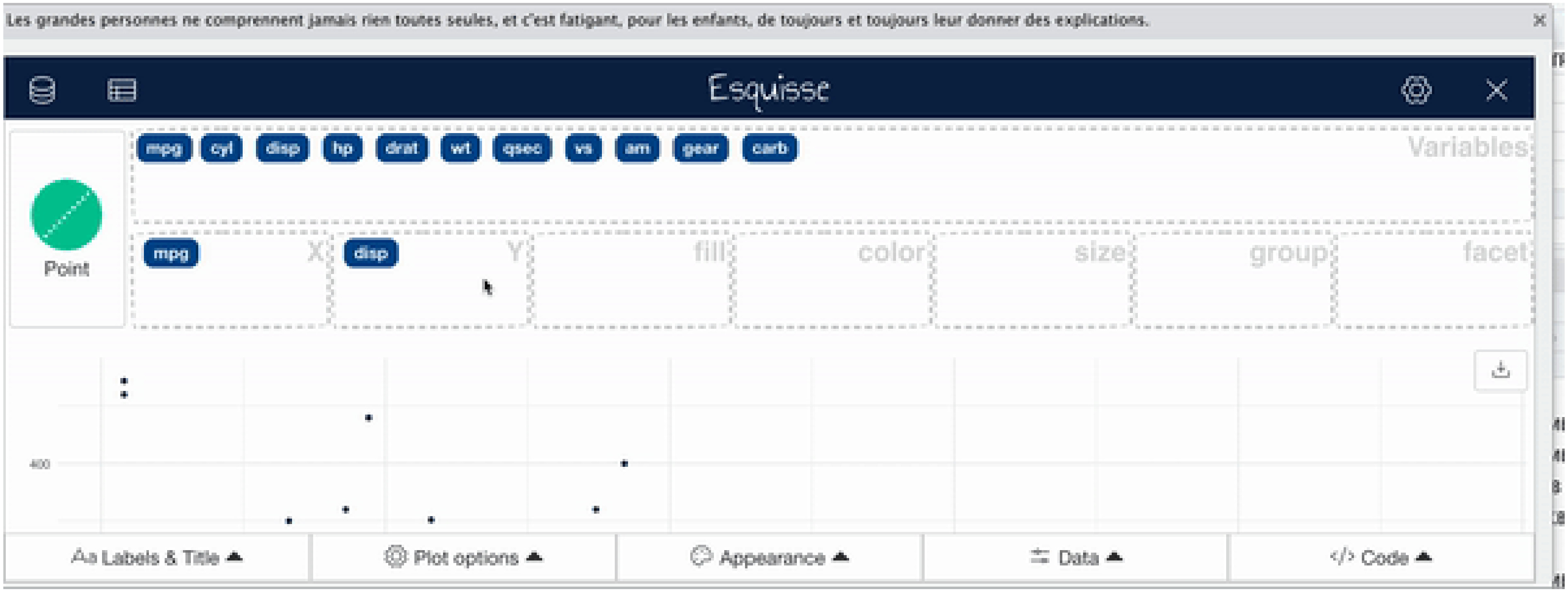
`esquisse` automatically assumes a plot type, but you might want to change this.



Les grandes personnes ne comprennent jamais rien toutes seules, et c'est fatigant, pour les enfants, de toujours et toujours leur donner des explications.

Add Facets

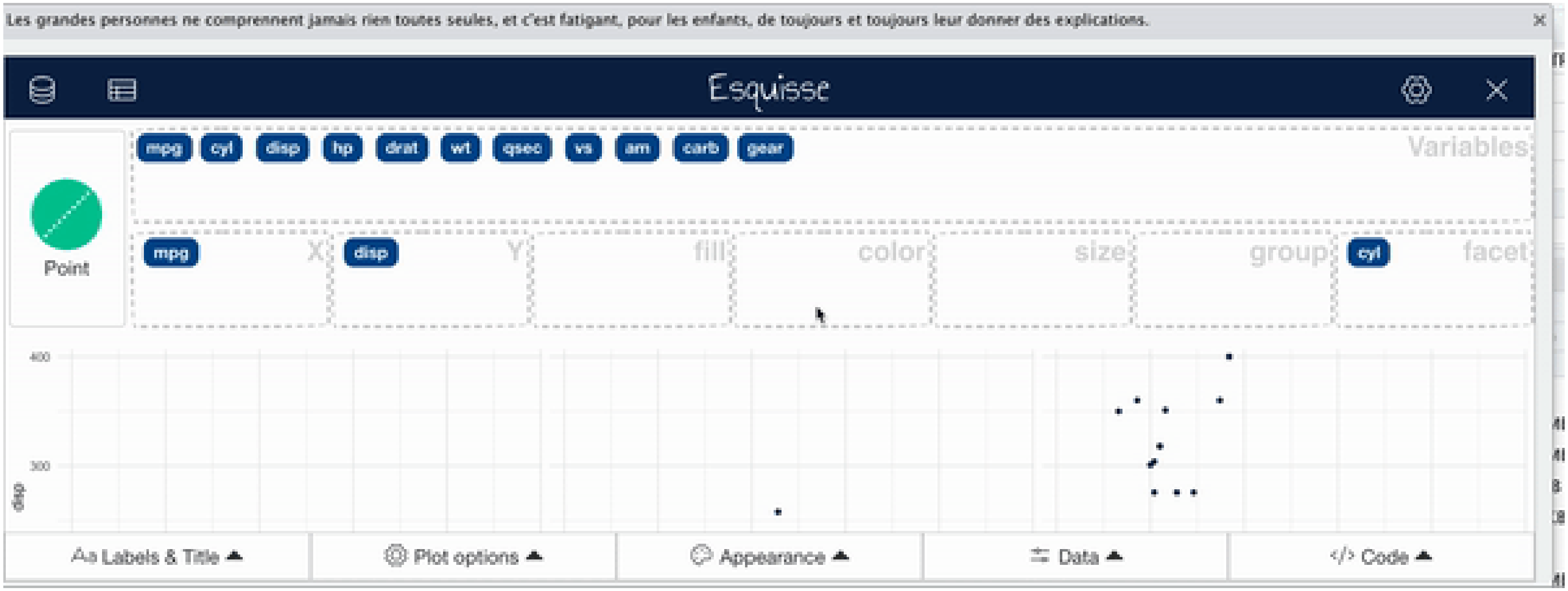
Facets create multiple plots based on the different values of a variable.



Les grandes personnes ne comprennent jamais rien toutes seules, et c'est fatigant, pour les enfants, de toujours et toujours leur donner des explications.

Add size

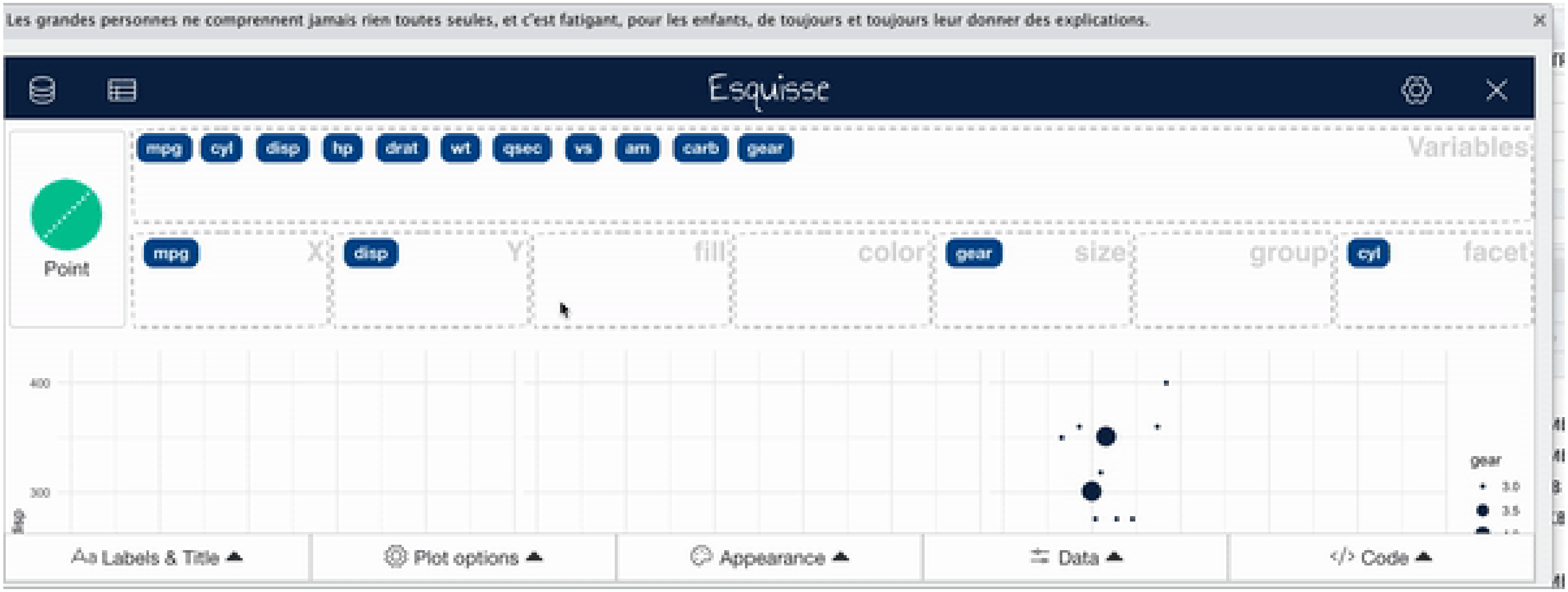
Sometimes it is useful to change the way points are plotted so that size represents a variable. This can especially be helpful if you need your plot to be black and white.



Les grandes personnes ne comprennent jamais rien toutes seules, et c'est fatigant, pour les enfants, de toujours et toujours leur donner des explications.

Add color

For plots with points use the color region to change coloring according to a variable. (use “fill” for bar plots)



Les grandes personnes ne comprennent jamais rien toutes seules, et c'est fatigant, pour les enfants, de toujours et toujours leur donner des explications.

X: mpg

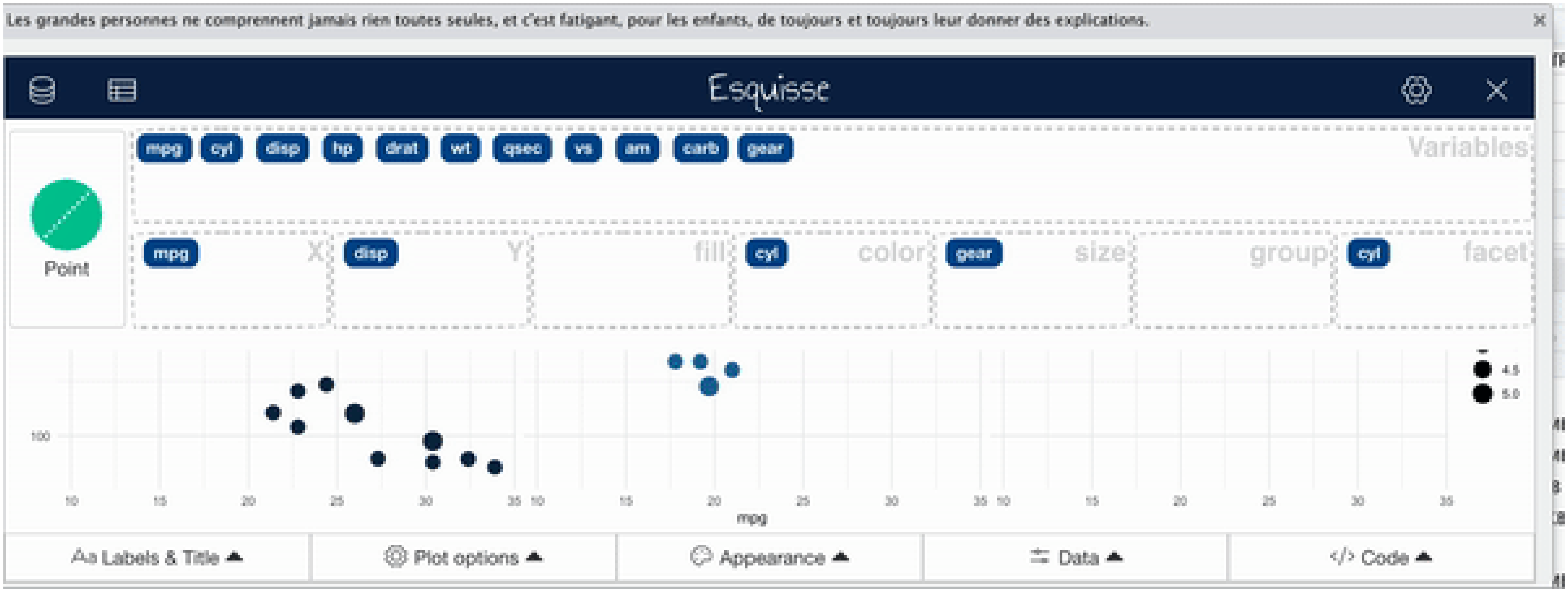
Y: disp

size: gear

facet: cyl

Appearance

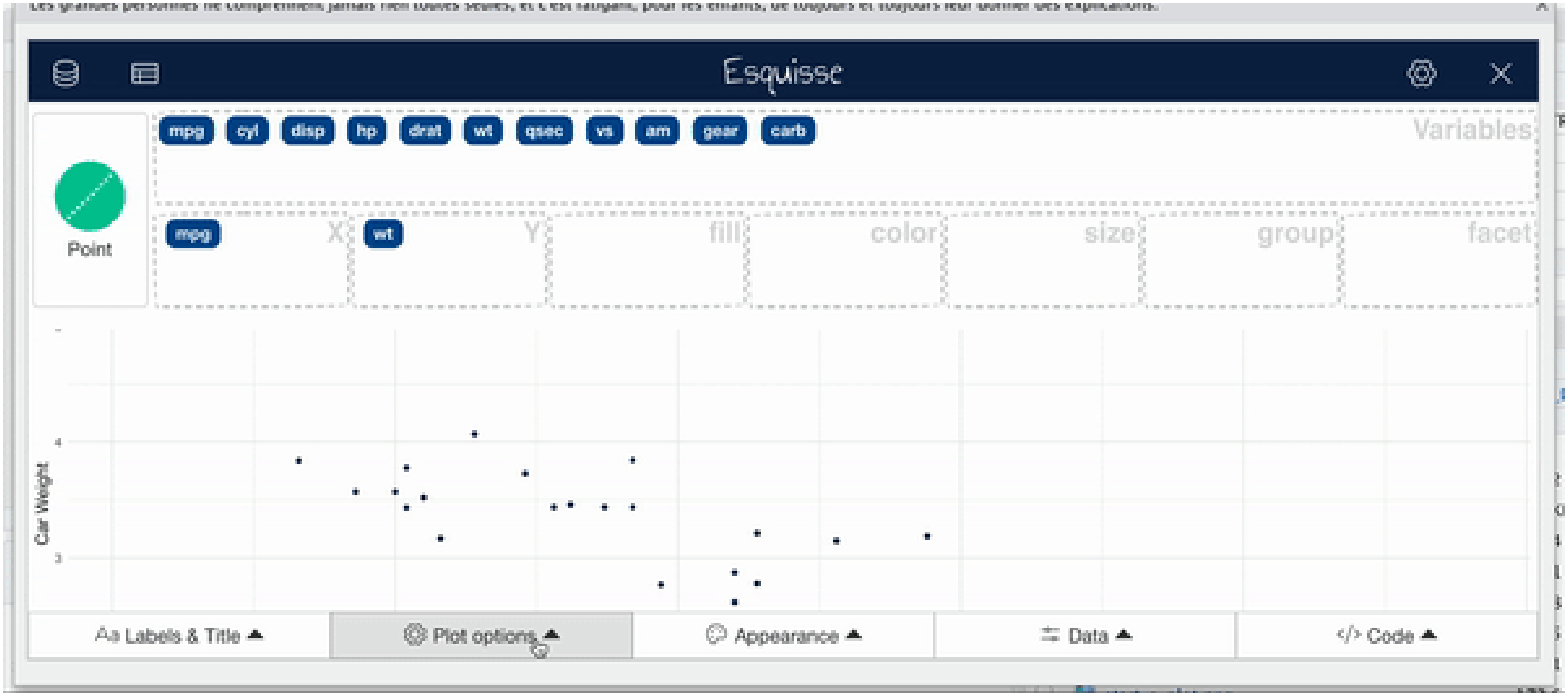
You can change the overall appearance with the appearance tab.



Les grandes personnes ne comprennent jamais rien toutes seules, et c'est fatigant, pour les enfants, de toujours et toujours leur donner des explications.

Smooth Lines

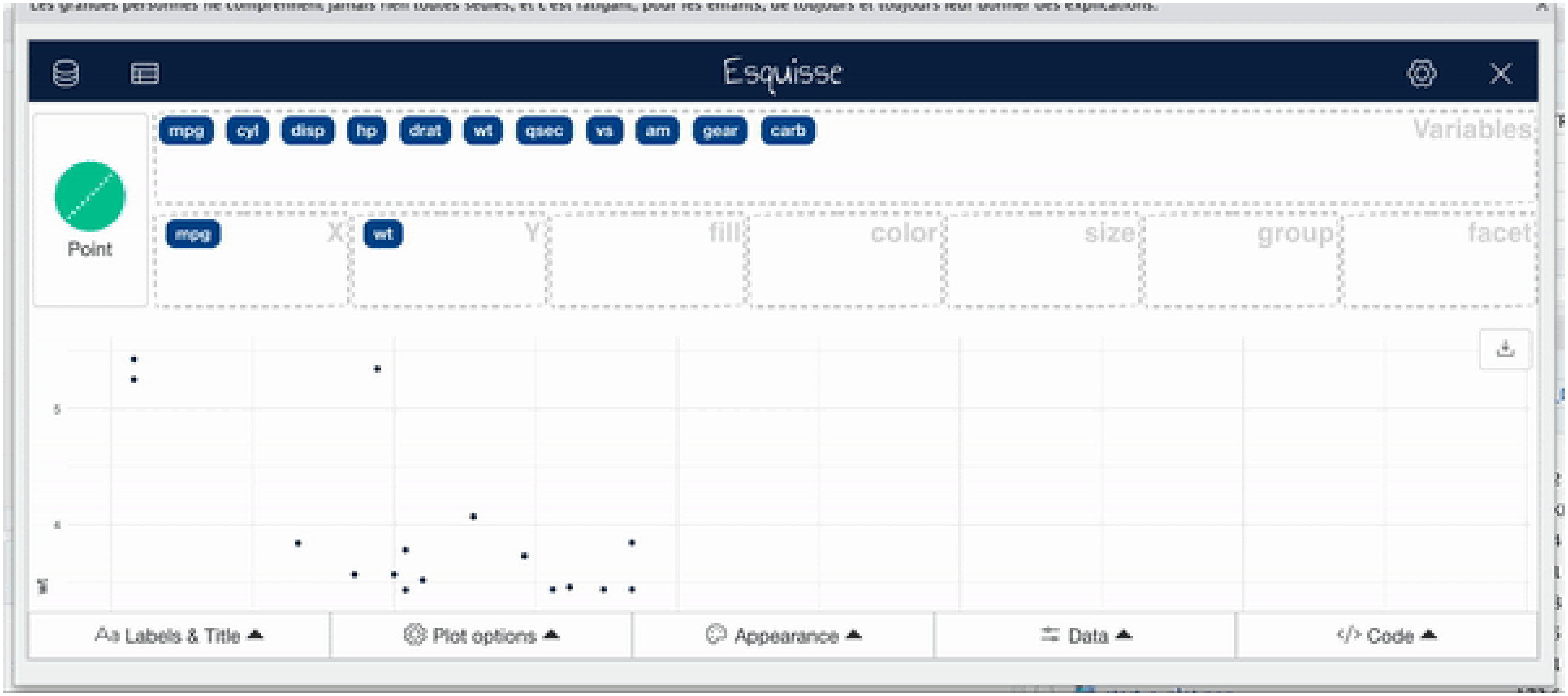
Especially when you have a scatter plot, it can be helpful to add a smooth/trend line.



Les grandes personnes ne comprennent jamais rien toutes seules, et c'est fatigant, pour les enfants, de toujours et toujours leur donner des explications.

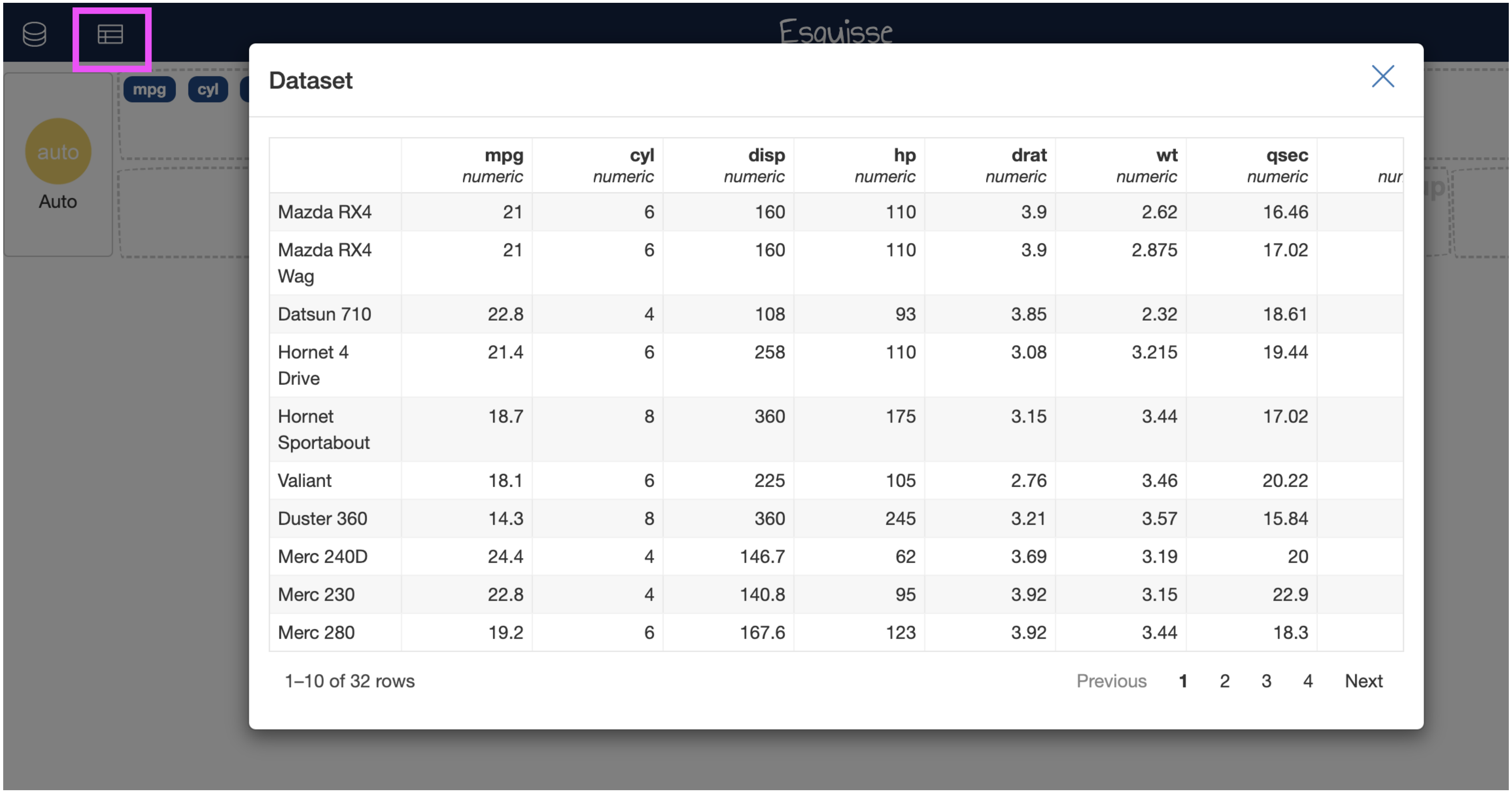
Change titles

To change titles on your plot, use the titles tab.


Les grandes personnes ne comprennent jamais rien toutes seules, et c'est fatigant, pour les enfants, de toujours et toujours leur donner des explications.
Esquisse
mpg
cyl
disp
hp
drat
wt
qsec
vs
am
gear
carb
Variables
Point
mpg
X
wt
Y
fill
color
size
group
facet
Aa Labels & Title
Plot options
Appearance
Data
</> Code

View data

You can also easily view data



Dataset

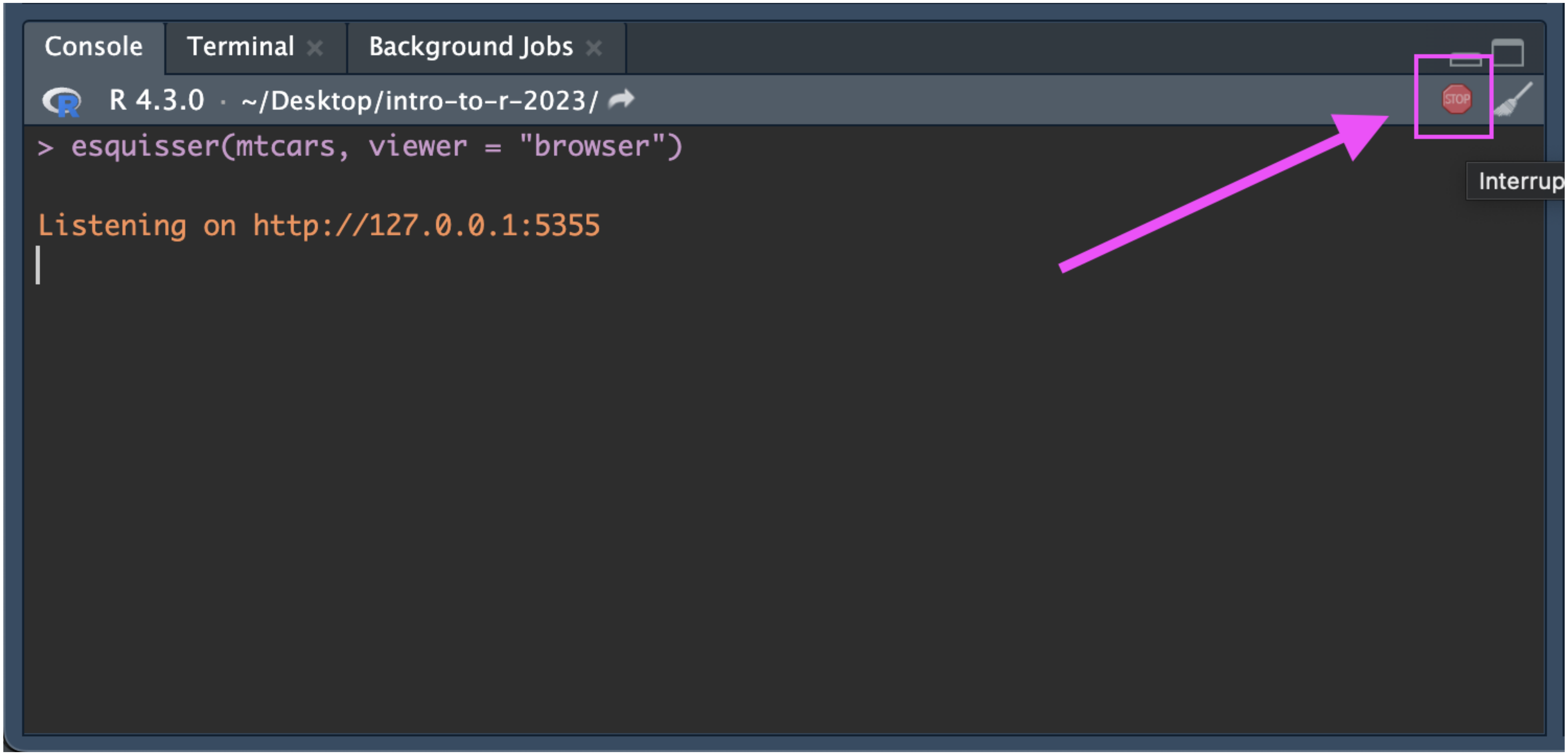
	mpg	cyl	disp	hp	drat	wt	qsec	
	numeric	*numeric*	*numeric*	*numeric*	*numeric*	*numeric*	*numeric*	*nur*
Mazda RX4	21	6	160	110	3.9	2.62	16.46	
Mazda RX4 Wag	21	6	160	110	3.9	2.875	17.02	
Datsun 710	22.8	4	108	93	3.85	2.32	18.61	
Hornet 4 Drive	21.4	6	258	110	3.08	3.215	19.44	
Hornet Sportabout	18.7	8	360	175	3.15	3.44	17.02	
Valiant	18.1	6	225	105	2.76	3.46	20.22	
Duster 360	14.3	8	360	245	3.21	3.57	15.84	
Merc 240D	24.4	4	146.7	62	3.69	3.19	20	
Merc 230	22.8	4	140.8	95	3.92	3.15	22.9	
Merc 280	19.2	6	167.6	123	3.92	3.44	18.3	

1–10 of 32 rows

Interrupting Esquisse

You'll need to "interrupt" Esquisse to launch it with a new dataset.

Use the stop button or press ctrl+c to stop the Esquisse app.



```
> esquisser(mtcars, viewer = "browser")

Listening on http://127.0.0.1:5355
```

Wide & Long Data Example

```
library(jhur)
wide_circ <- read_circulator()
```

```
## Rows: 1146 Columns: 15
## ── Column specification ──────────────────────────────────────────────────
## Delimiter: ","
## chr  (2): day, date
## dbl (13): orangeBoardings, orangeAlightings, orangeAverage, purpleBoardings
##
## □  Use `spec()` to retrieve the full column specification for this data.
## □  Specify the column types or set `show_col_types = FALSE` to quiet this me
```

Wide Data

```
library(dplyr)
glimpse(wide_circ)
```

```
## Rows: 1,146
## Columns: 15
## $ day               <chr> "Monday", "Tuesday", "Wednesday", "Thursday", "Fri
## $ date              <chr> "01/11/2010", "01/12/2010", "01/13/2010", "01/14/2
## $ orangeBoardings   <dbl> 877, 777, 1203, 1194, 1645, 1457, 839, 999, 1023,
## $ orangeAlightings  <dbl> 1027, 815, 1220, 1233, 1643, 1524, 938, 1000, 1047
## $ orangeAverage     <dbl> 952.0, 796.0, 1211.5, 1213.5, 1644.0, 1490.5, 888.
## $ purpleBoardings   <dbl> NA, NA, NA, NA, NA, NA, NA, NA, NA, NA, NA, NA, NA
## $ purpleAlightings  <dbl> NA, NA, NA, NA, NA, NA, NA, NA, NA, NA, NA, NA, NA
## $ purpleAverage     <dbl> NA, NA, NA, NA, NA, NA, NA, NA, NA, NA, NA, NA, NA
## $ greenBoardings    <dbl> NA, NA, NA, NA, NA, NA, NA, NA, NA, NA, NA, NA, NA
## $ greenAlightings   <dbl> NA, NA, NA, NA, NA, NA, NA, NA, NA, NA, NA, NA, NA
## $ greenAverage      <dbl> NA, NA, NA, NA, NA, NA, NA, NA, NA, NA, NA, NA, NA
## $ bannerBoardings   <dbl> NA, NA, NA, NA, NA, NA, NA, NA, NA, NA, NA, NA, NA
## $ bannerAlightings  <dbl> NA, NA, NA, NA, NA, NA, NA, NA, NA, NA, NA, NA, NA
## $ bannerAverage     <dbl> NA, NA, NA, NA, NA, NA, NA, NA, NA, NA, NA, NA, NA
## $ daily             <dbl> 952.0, 796.0, 1211.5, 1213.5, 1644.0, 1490.5, 888.
```

Long Data

```r
library(tidyr)
long_circ <- wide_circ %>%
  pivot_longer(
    cols = contains(c("boarding")),
    names_to = "Route",
    values_to = "Boardings"
  )
```

Long Data

```r
glimpse(long_circ)
```

```
## Rows: 4,584
## Columns: 13
## $ day               <chr> "Monday", "Monday", "Monday", "Monday", "Tuesday",
## $ date              <chr> "01/11/2010", "01/11/2010", "01/11/2010", "01/11/2
## $ orangeAlightings <dbl> 1027, 1027, 1027, 1027, 815, 815, 815, 815, 1220,
## $ orangeAverage    <dbl> 952.0, 952.0, 952.0, 952.0, 796.0, 796.0, 796.0, 7
## $ purpleAlightings <dbl> NA, NA, NA, NA, NA, NA, NA, NA, NA, NA, NA, NA, NA
## $ purpleAverage    <dbl> NA, NA, NA, NA, NA, NA, NA, NA, NA, NA, NA, NA, NA
## $ greenAlightings  <dbl> NA, NA, NA, NA, NA, NA, NA, NA, NA, NA, NA, NA, NA
## $ greenAverage     <dbl> NA, NA, NA, NA, NA, NA, NA, NA, NA, NA, NA, NA, NA
## $ bannerAlightings <dbl> NA, NA, NA, NA, NA, NA, NA, NA, NA, NA, NA, NA, NA
## $ bannerAverage    <dbl> NA, NA, NA, NA, NA, NA, NA, NA, NA, NA, NA, NA, NA
## $ daily            <dbl> 952.0, 952.0, 952.0, 952.0, 796.0, 796.0, 796.0, 7
## $ Route            <chr> "orangeBoardings", "purpleBoardings", "greenBoardi
## $ Boardings        <dbl> 877, NA, NA, NA, 777, NA, NA, NA, 1203, NA, NA, NA
```

Make a plot of boardings by day for different routes

```
esquisser(wide_circ) # days as x...? Tricky!
esquisser(long_circ) # day as x, Boardings as y, Route as fill
```

Summary

- Use the `esquisser()` function on a dataset
- Use the `viewer = "browser"` argument to launch in your browser.
- Code from Esquisse can copied into code chunks to be generated in the “Plots” pane
- It’s easier if your code is in “long” form!

Lab

Class Website

Lab

Image by Gerd Altmann from Pixabay