Implementation in ggplot2

One syntactic framework for many plots

^ major advantage over `base` graphics

Elements

Plots emerge from layered components:

- aesthetics (roles variables play)
- geometric objects
- scales
- stats
- facets

Getting started

```
install.packages("ggplot2")
require(ggplot2)
```

Data

ggplot2 uses data frames

```
# load data
data(mtcars)

# check object class
class(mtcars)
```

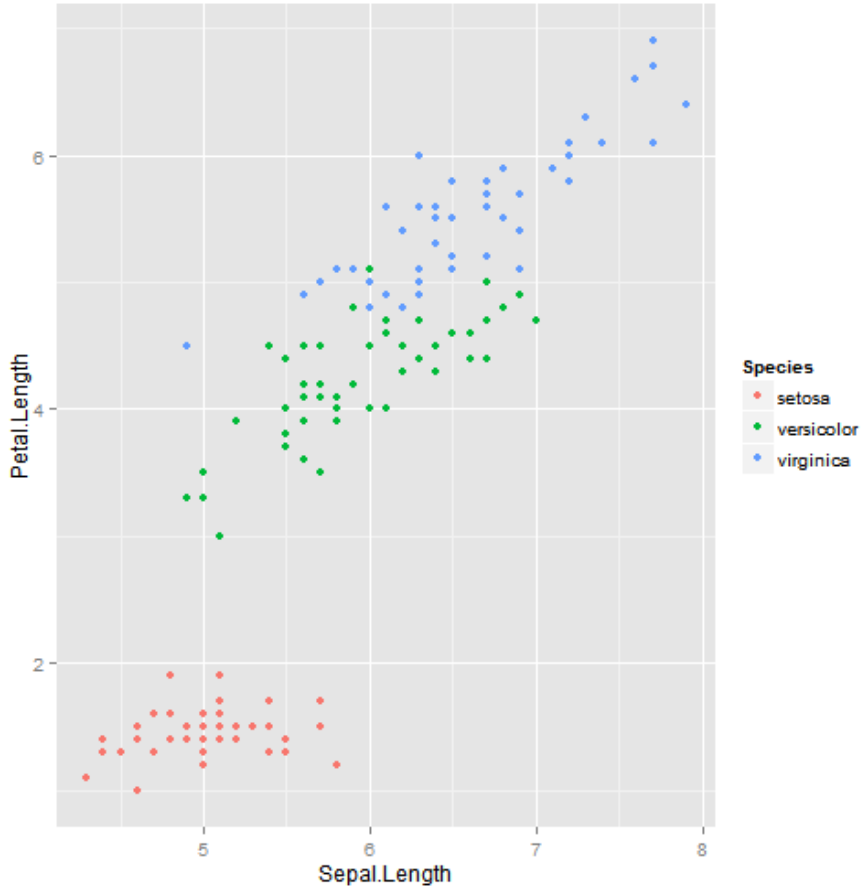
```
[1] "data.frame"
```

```
require(ggplot2)
class(diamonds)
```

```
[1] "data.frame"
```

Quickplot

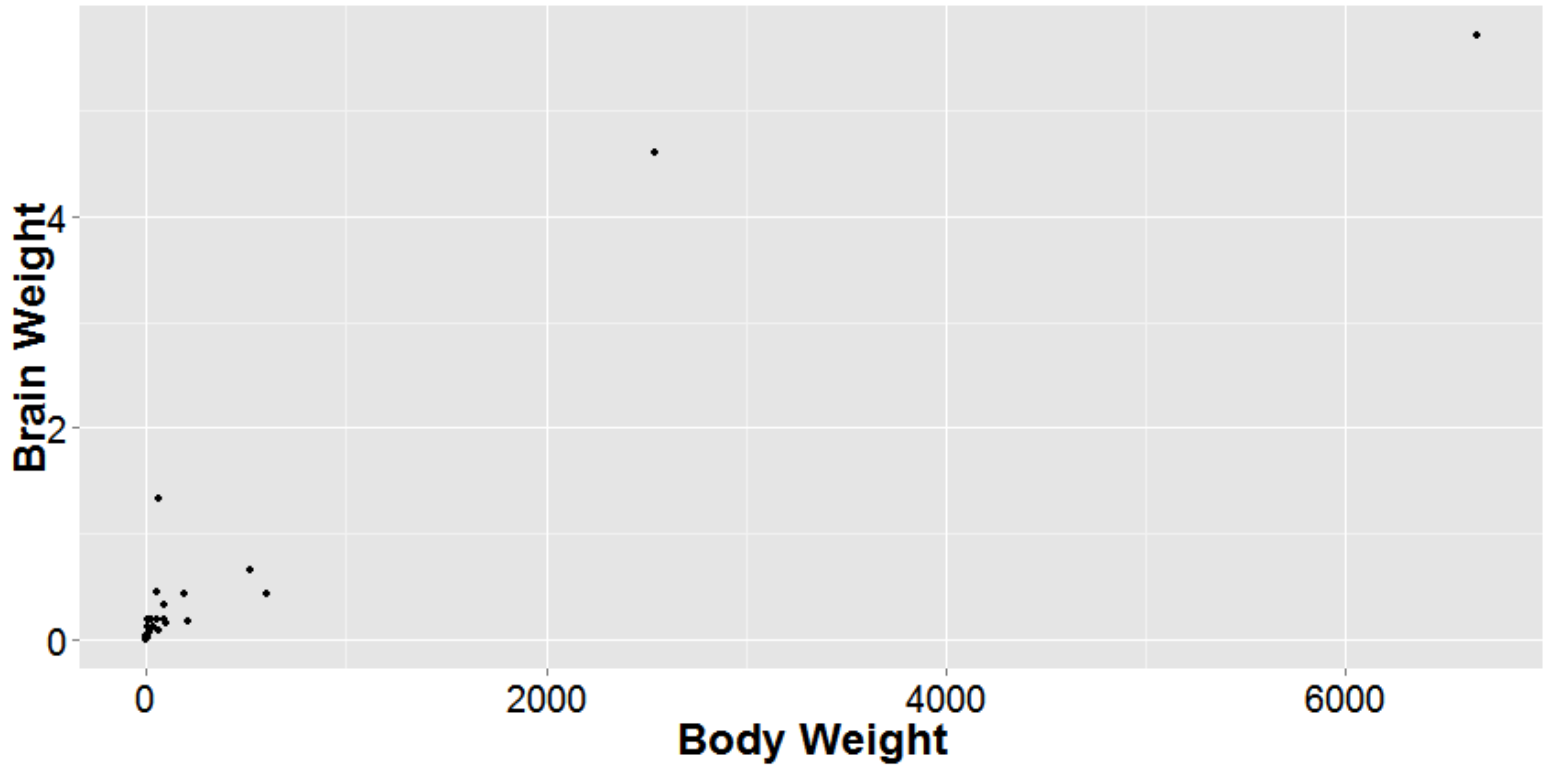
```
qplot(Sepal.Length, Petal.Length, data = iris,
color = Species)
```



Scatterplot

```
p <- ggplot(msleep, aes(x=bodywt, y=brainwt)) + geom_point()
```

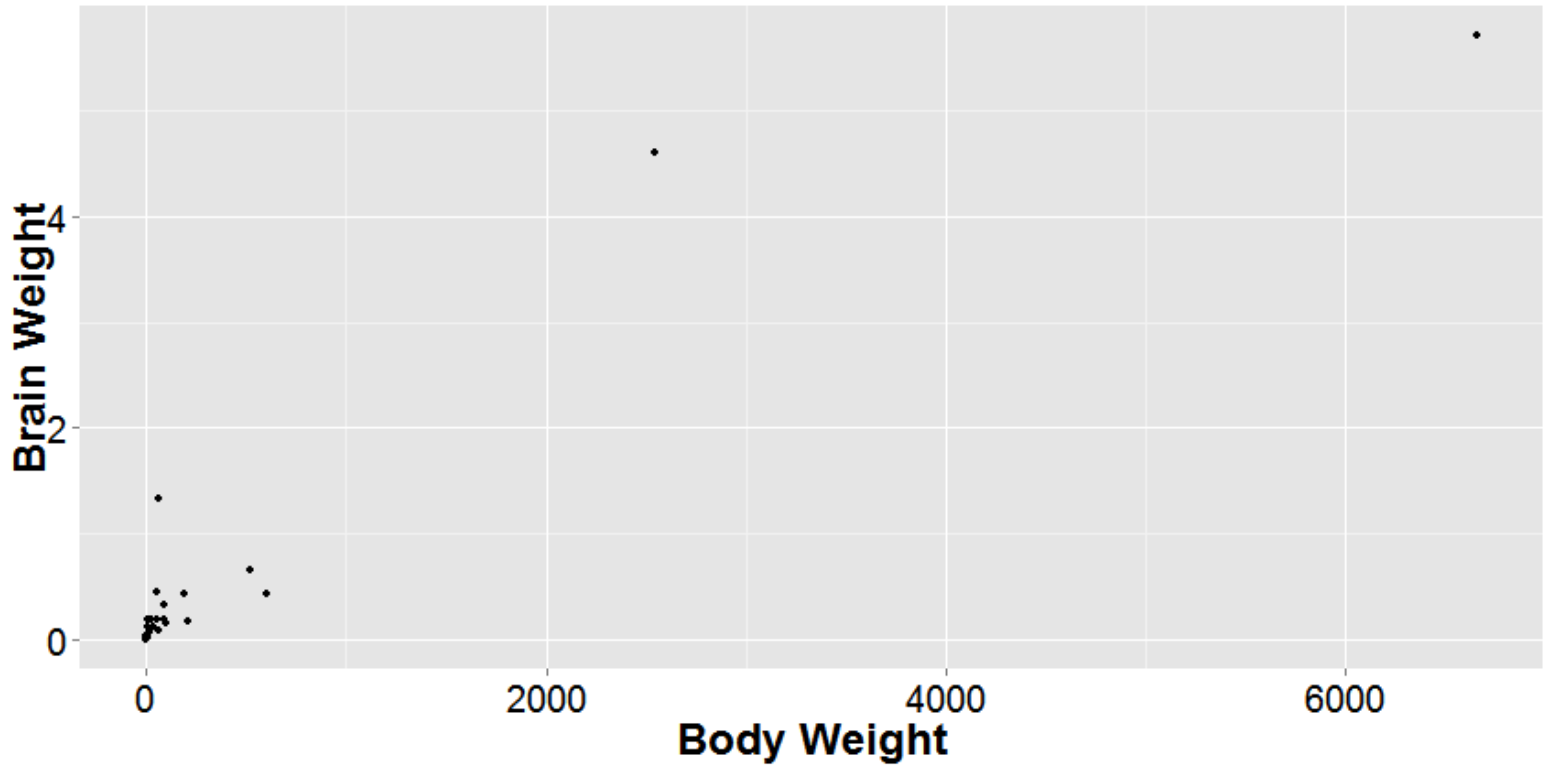
```
p
```



Aesthetics & geoms

```
alt <- ggplot(msleep) + geom_point(aes(x=bodywt, y=brainwt))
```

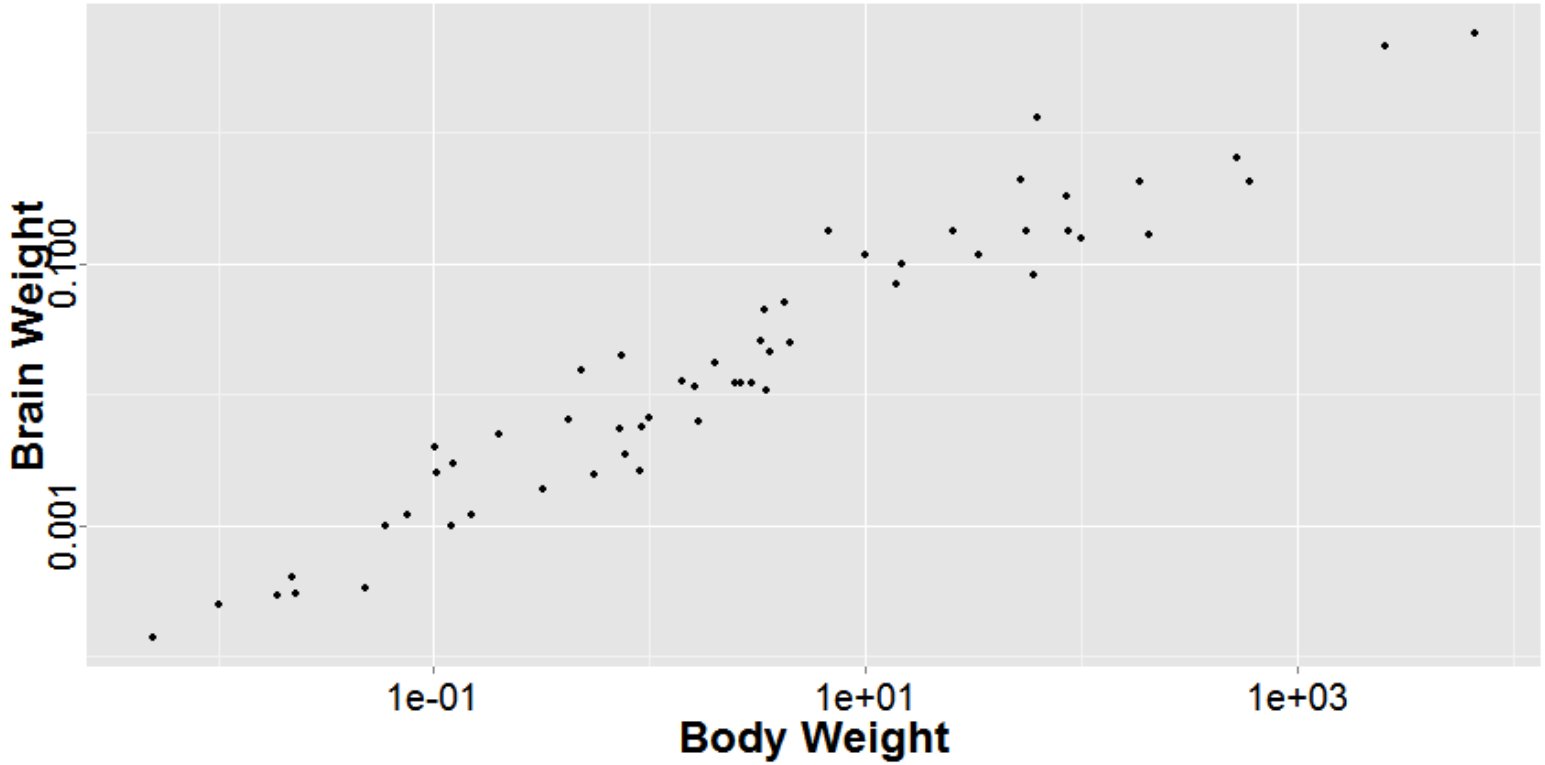
```
alt
```



Axis scaling

```
p <- p + scale_y_log10() + scale_x_log10()
```

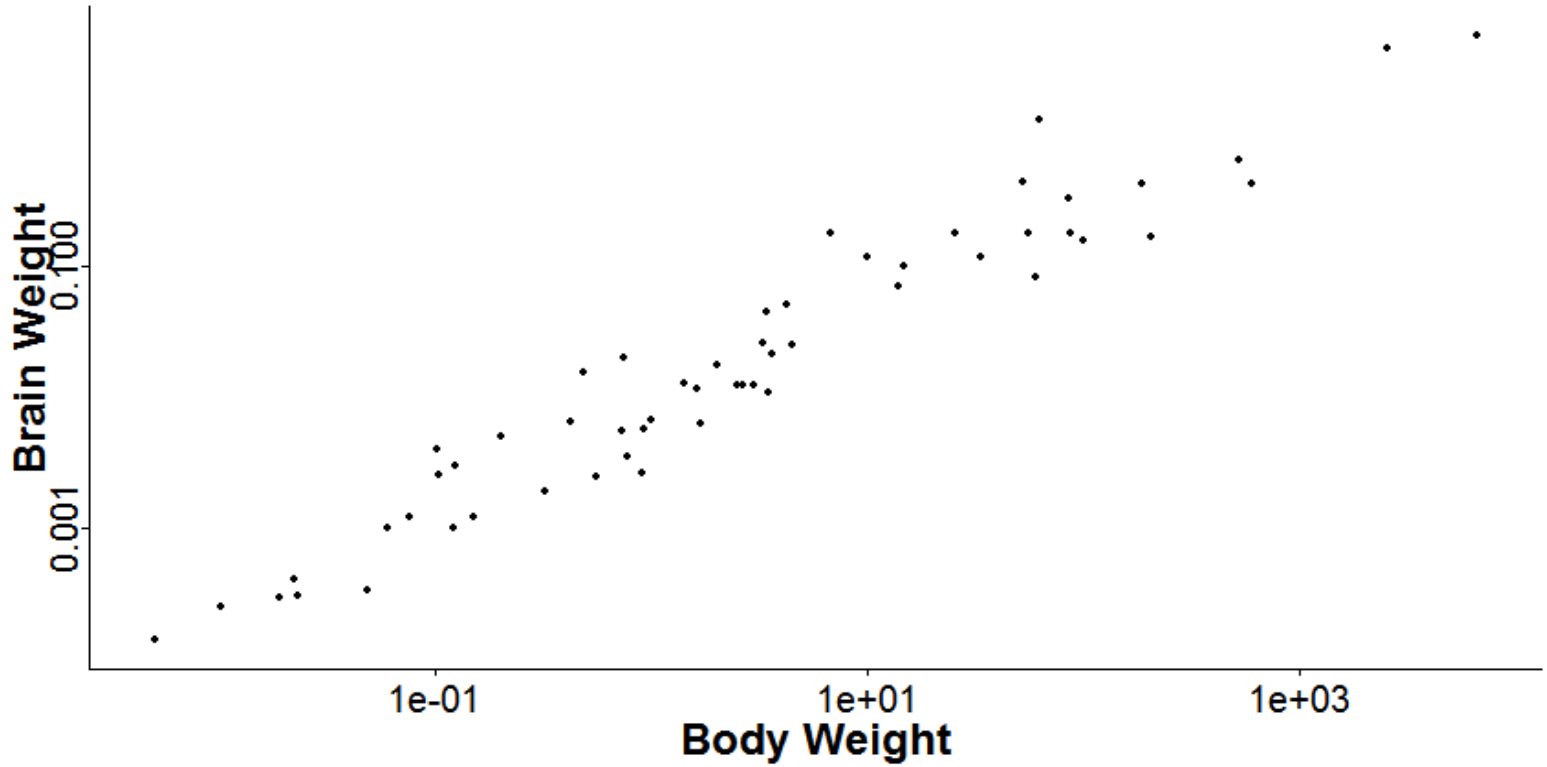
```
p
```



Classic theme

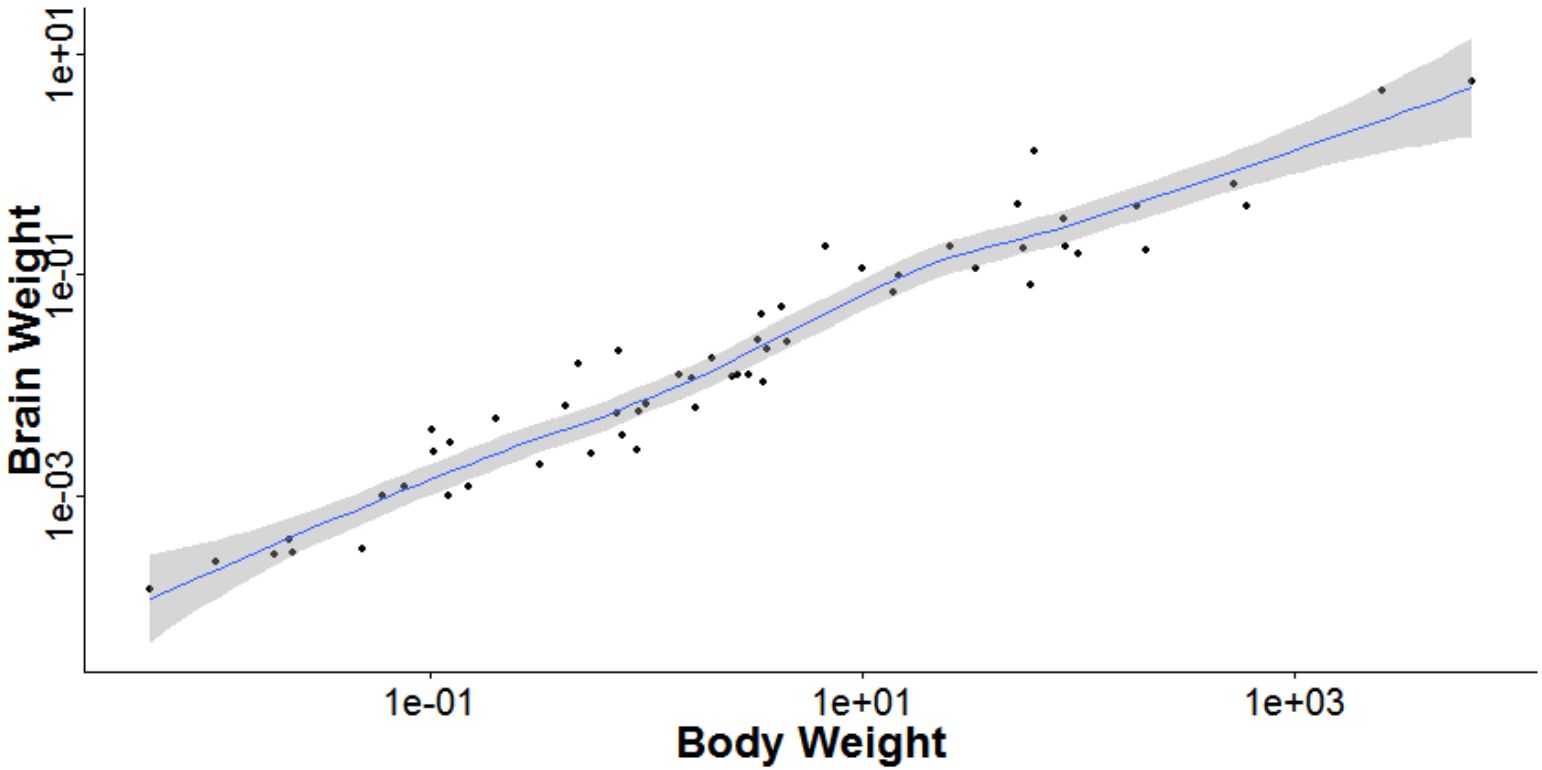
```
p <- p + theme_classic()
```

```
p
```



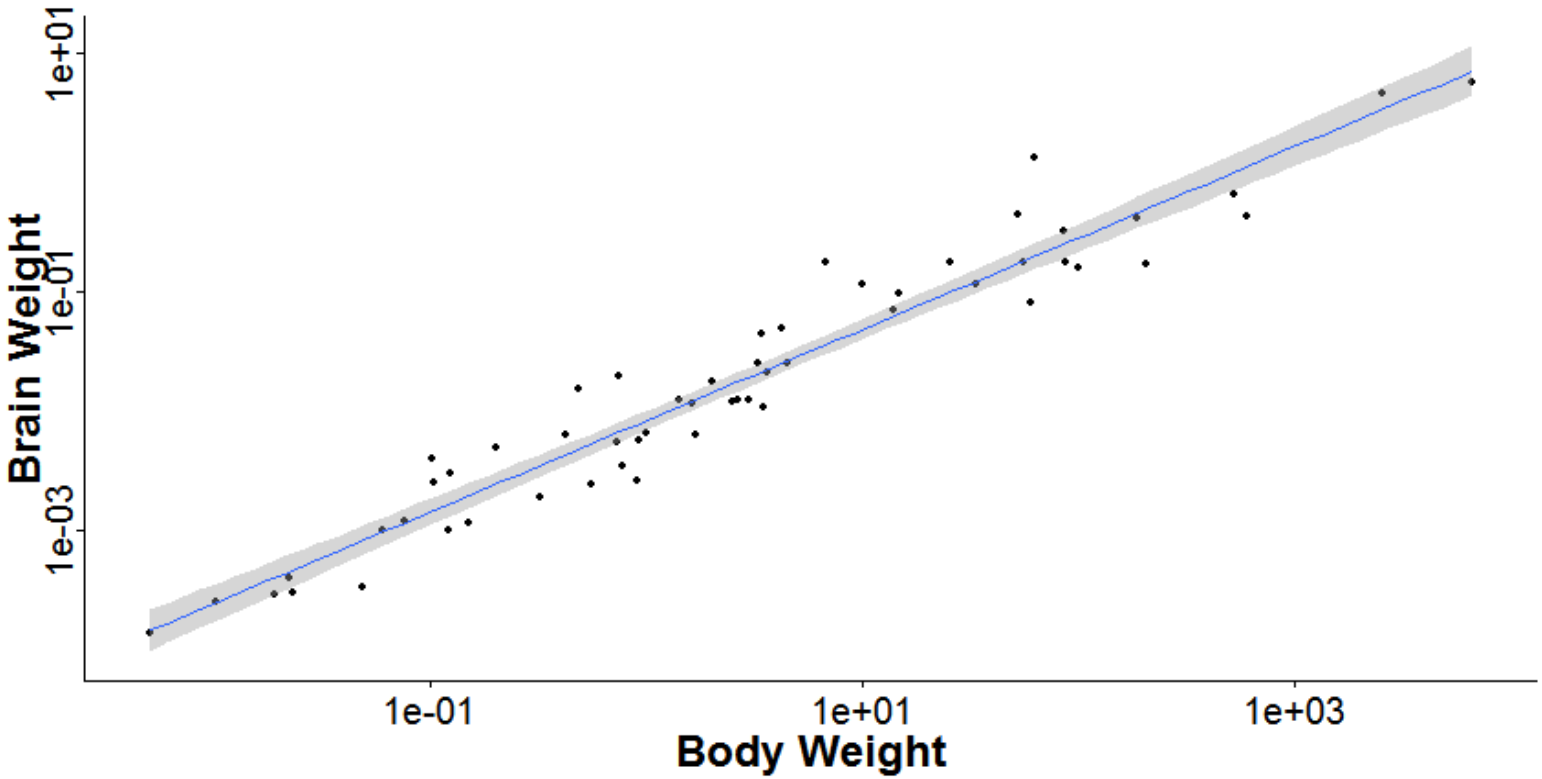
Smoothing

```
p + stat_smooth()
```



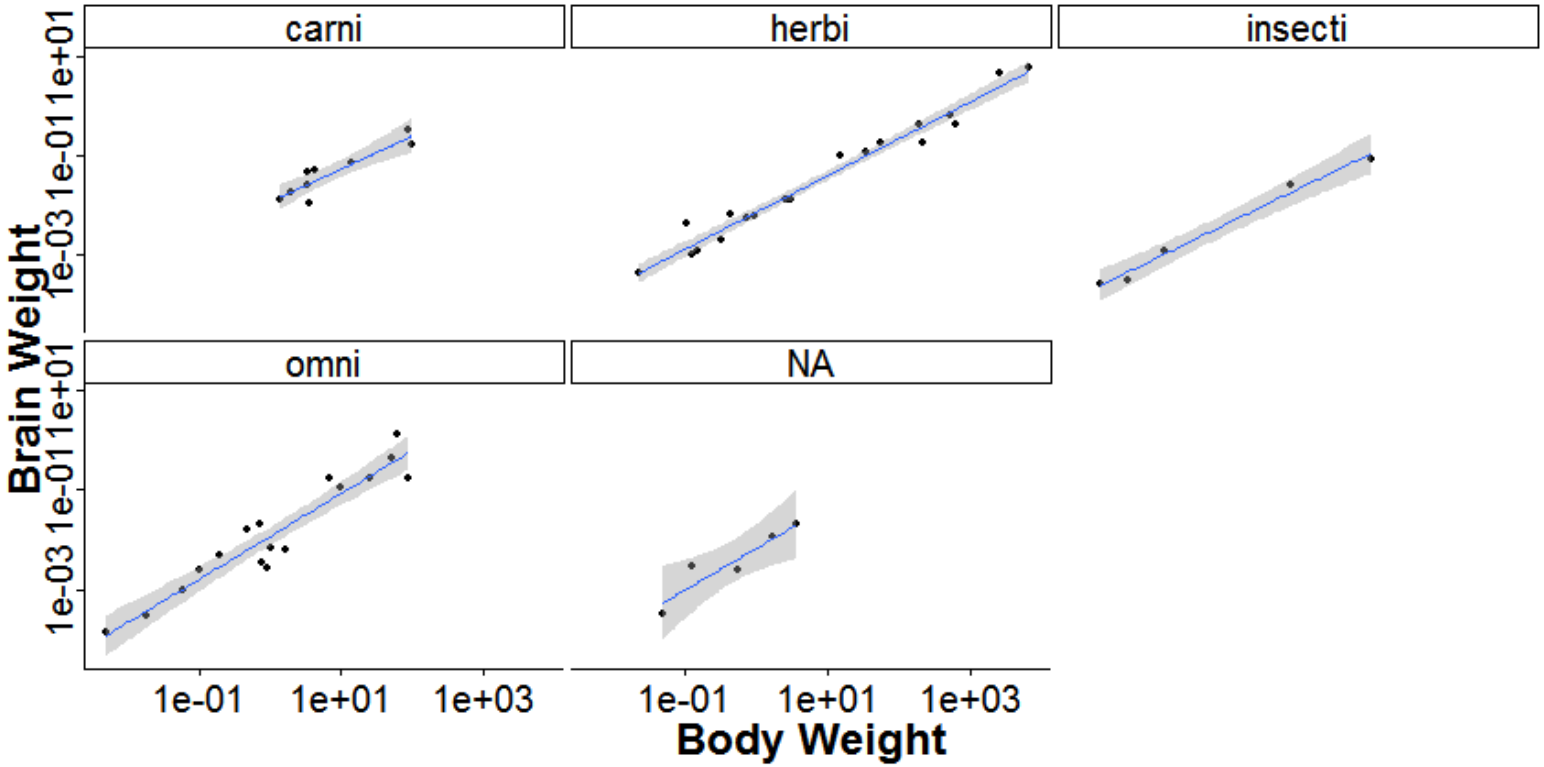
OLS regression line

```
p <- p + stat_smooth(method="lm")
p
```



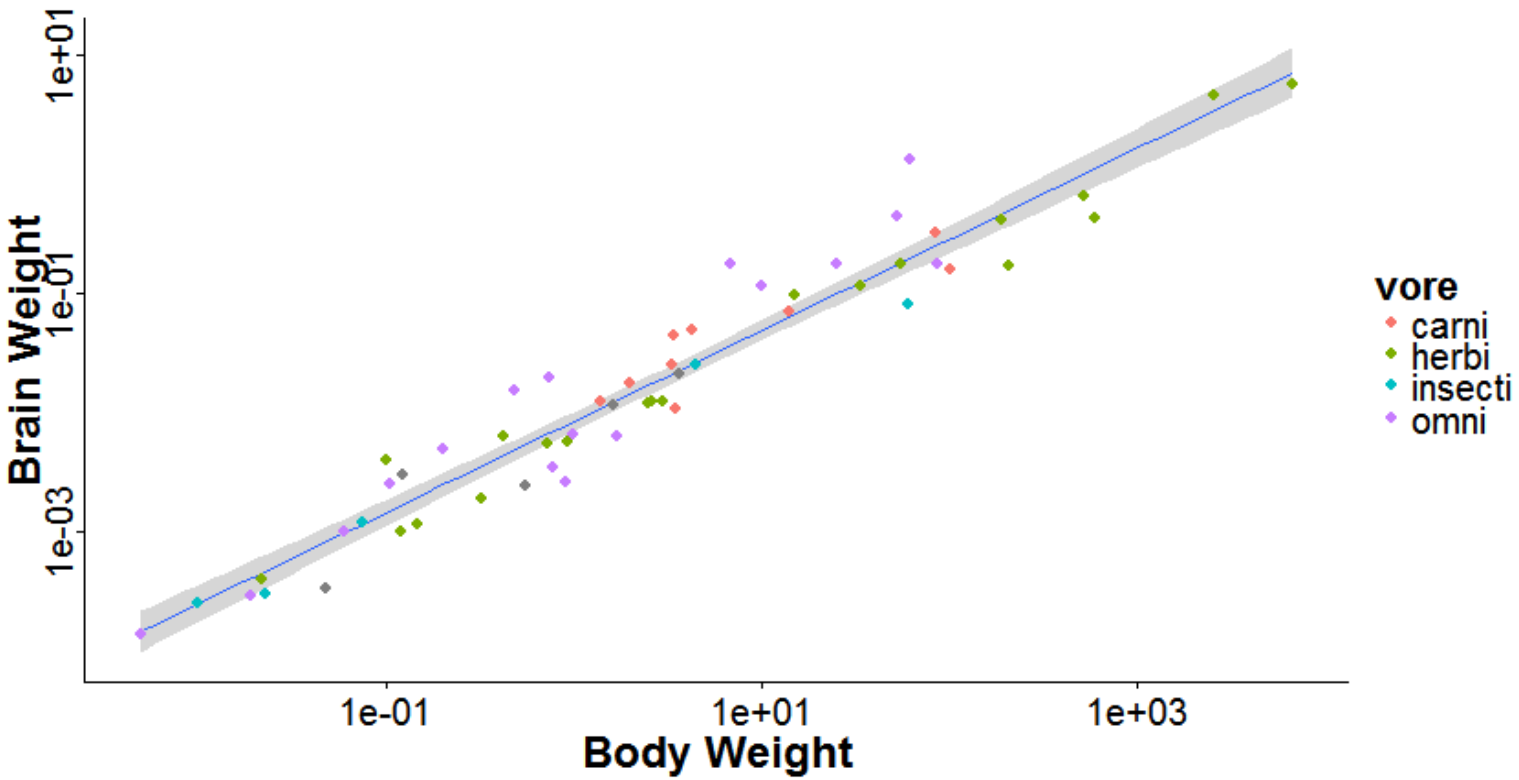
Faceting

```
p + facet_wrap(~vore)
```



Color

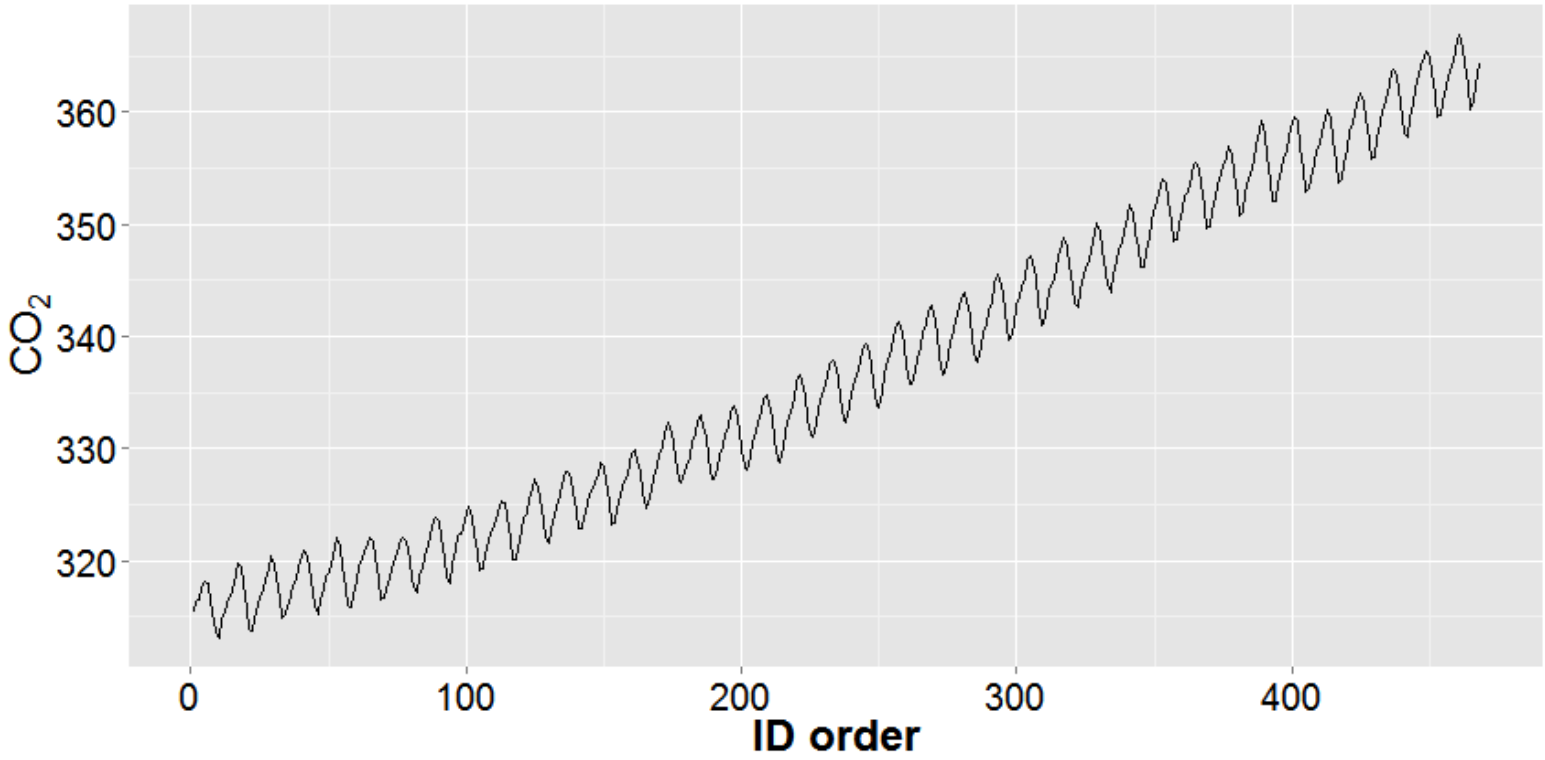
```
p + geom_point(aes(color=vore), size=3)
```



Line plots

```
data(co2)
lp <- ggplot(data.frame(co2), aes(x=1:length(co2), y=co2)) + geom_line()
```

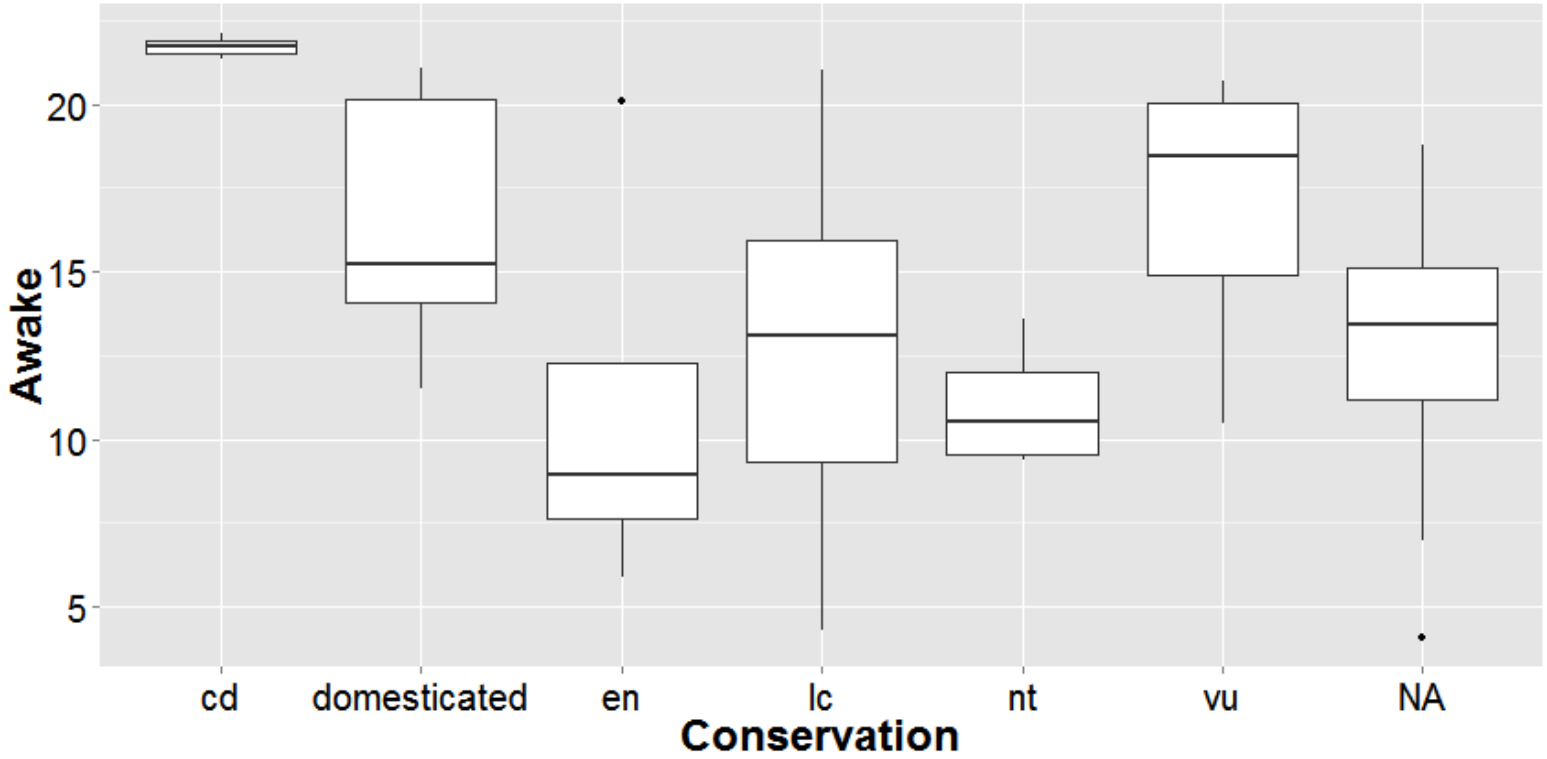
```
lp
```



Box plots

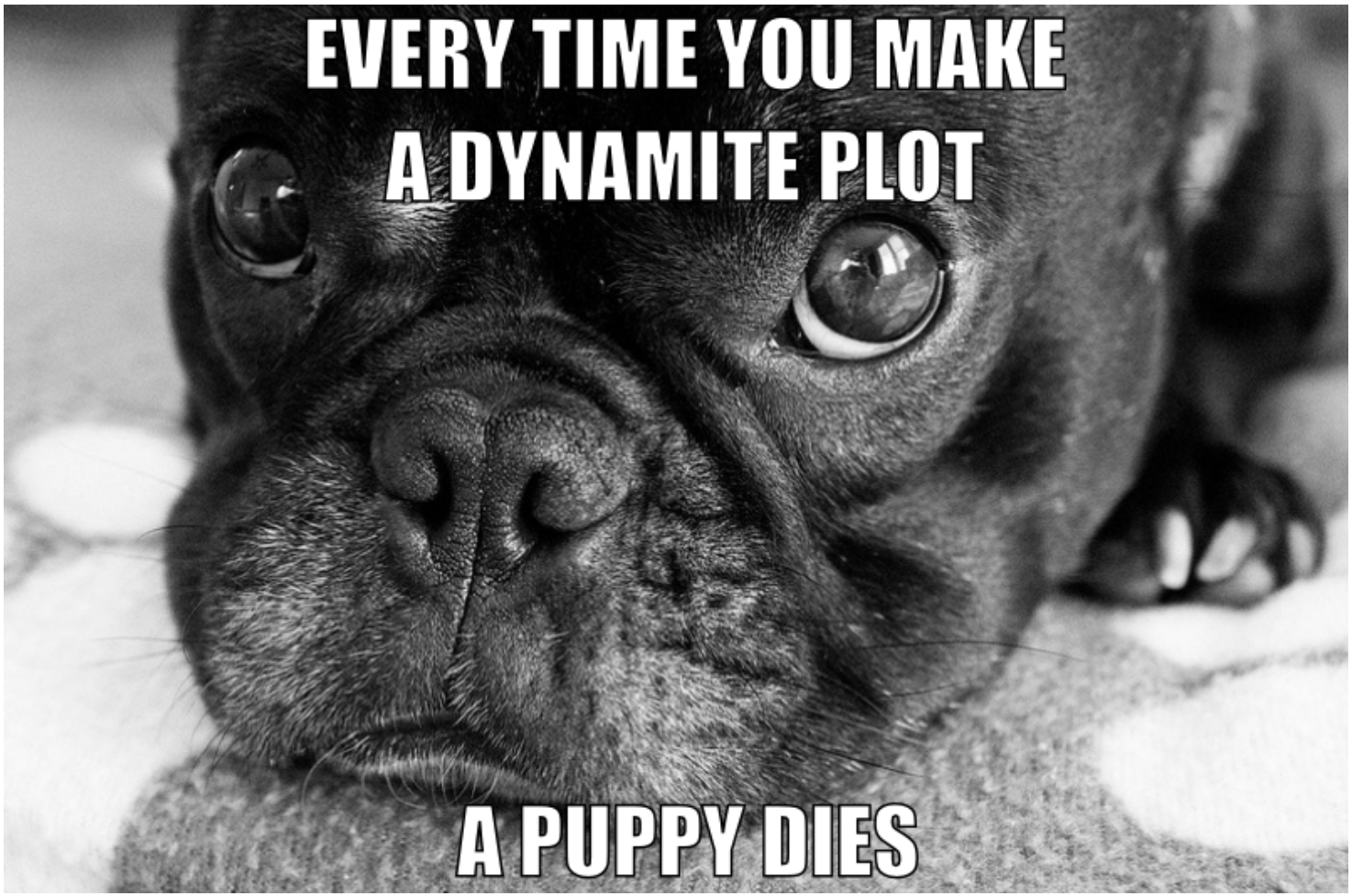
```
bp <- ggplot(msleep, aes(x=conservation, y=awake)) + geom_boxplot()
```

```
bp
```



Dynamite plots

Please don't.



Combining plot types

```
Error in eval(expr, envir, enclos) :
  could not find function "grid.arrange"
```