**ggplot2**

**Grammar of Graphics**

2 principles

1. Graphics = distinct layers of grammatical elements
2. Meaningful plots through aesthetic mapping

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ggplot(mtcars, aes(x = wt, y = mpg)) + geom\_point()

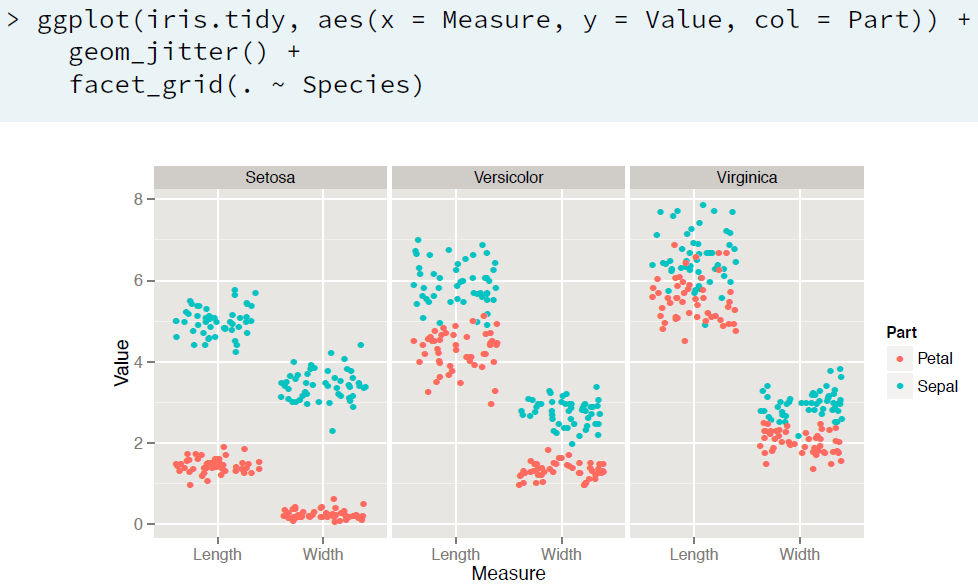
ggplot(mtcars, aes(x = wt, y = mpg, **color** = disp)) + geom\_point()

ggplot(mtcars, aes(x = wt, y = mpg, **size** = disp)) + geom\_point()

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**Data**

iris.wide (pg15) & iris.tidy (pg23) & facet\_grid()



**Aesthetics**

* Column can be mapped onto visible ***aesthetic***
* Aesthetics in aes(), ***attributes*** in geom\_(col=”red”)
* aes() can also be called in geom\_(), but done usually when you want to include multiple data sources
* ggplot(mtcars, aes(x=wt, y=mpg, fill=cyl, col=am)) + geom\_point(shape=21, size=4, alpha=0.6)
  + aes has to be associated with columns
  + attributes are given along with geom\_\*() and don’t have columns associated with them
* ggplot(mtcars, aes(x = wt, y = mpg, fill = cyl, label=rownames(mtcars))) + geom\_text(color='red')
* **Modifying Aesthetics**
  + geom\_bar(**postion**=”< stack, fill, dodge, … >”)
  + **scale\_\*** functions
    - scale\_x/y\_continuous/discrete(“title”, limits, breaks, expand, ….)
  + **labs**(x,y,col, …)

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| Aesthetics for Continuous Variables | Aesthetics for Categorical Variables |