

An Exploration of Tooth Growth Data

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1 Loading and Summarization of Data Set: ToothGrowth

Let's load our data and look at a summary and the structure of its contents.

```
data(ToothGrowth); str(ToothGrowth); summary(ToothGrowth)

## 'data.frame':    60 obs. of  3 variables:
## $ len : num  4.2 11.5 7.3 5.8 6.4 10 11.2 11.2 5.2 7 ...
## $ supp: Factor w/ 2 levels "OJ","VC": 2 2 2 2 2 2 2 2 2 2 ...
## $ dose: num  0.5 0.5 0.5 0.5 0.5 0.5 0.5 0.5 0.5 0.5 ...

##      len      supp      dose
## Min.   : 4.20    OJ:30   Min.    :0.500
## 1st Qu.:13.07    VC:30   1st Qu.:0.500
## Median :19.25                Median :1.000
## Mean   :18.81                Mean    :1.167
## 3rd Qu.:25.27                3rd Qu.:2.000
## Max.   :33.90                Max.    :2.000
```

We can see there are 60 observations of 3 columns, that the first and third columns are numerics - and the second column is a factor with two levels. The summary further tells us the quantile breakdown of each of the numeric columns.

2 Use confidence intervals and/or hypothesis tests to compare tooth growth by supp and dose.

2.1 Simulation of Theoretical Distributions