STAT 151A Lecture 1

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Remark 0.1

Track the distirbution of a response variable Y as a function of an explanatory variable X:

- $E(Y|x) = f(x)$
- $E(Y|x) = \alpha + \beta x$

In the Kleiber example, which is the reponse and which is the explanatory variable? Does an elpehant produce more heat per day per kilogram of body mass than a cat?

Method 0.2 (Log transformation)

Taking logarithms of a group of numbers reduces the gap between the largest numbers and the others
Try taking (natural) logs of both our variables

Method 0.3

Sum of squared deivations

$$\sum_i (log(rate_i) - [a + b \cdot \log(mass_i)])^2$$

Remark 0.4 (Uses of linear modeling/regression)

Summarizing associations
Predicting response
Causal inference