Note: $s^2 = \frac{1}{n-1}\sum_{i=1}^{n}(x_i - \bar{x})^2$

$\bar{X} = \sum_{i=1}^{n} x_i \Big/ n$

$Y = \beta_0 + \beta_1 X_1 + \ldots + \beta_d X_d$

$E[x] = \sum_x x f(x)$

$E[cx] = cE[x]$

$E[X_1 + X_2] = E[X_1] + E[X_2]$

$$E[X+Y] = \sum_x \sum_Y (x+y) f_{XY}(x,y)$$

$$= \sum_x \sum_y x f_{XY}(x,y) + \sum_x \sum_y y f_{XY}(x,y)$$

$$= E[X] + E[Y]$$

v.s.v.

S^2 is an unbiased estimator for σ^2, but

$\sqrt{S^2}$ is <u>not</u> an unbiased estimator of σ!

Solution:

Standard error of the mean

(standardavviket en i modlet)

$$\mathrm{Var}\,\overline{X} = \frac{\sigma^2}{n}$$

$$\sqrt{\mathrm{Var}\,\overline{X}} = \frac{\sigma}{\sqrt{n}}$$

$$RSE = \sqrt{\frac{1}{n-2} SSE}$$

use β from train, but calc. SSE on test!

In ML we instead use

RSE on val/test data!

→ tighter interval on smaller n!