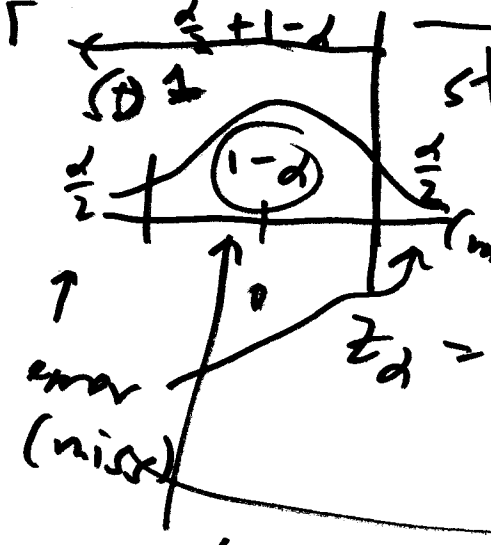



standard Normal PDF

$z_\alpha = \Phi^{-1}(1-\frac{\alpha}{2})$

$\frac{\alpha}{2}+1-\alpha = 1-\frac{\alpha}{2}$

STAT 206
9 Feb 21

DD extra OH

(1)

Bayesian story:

prior PDF for $\theta$

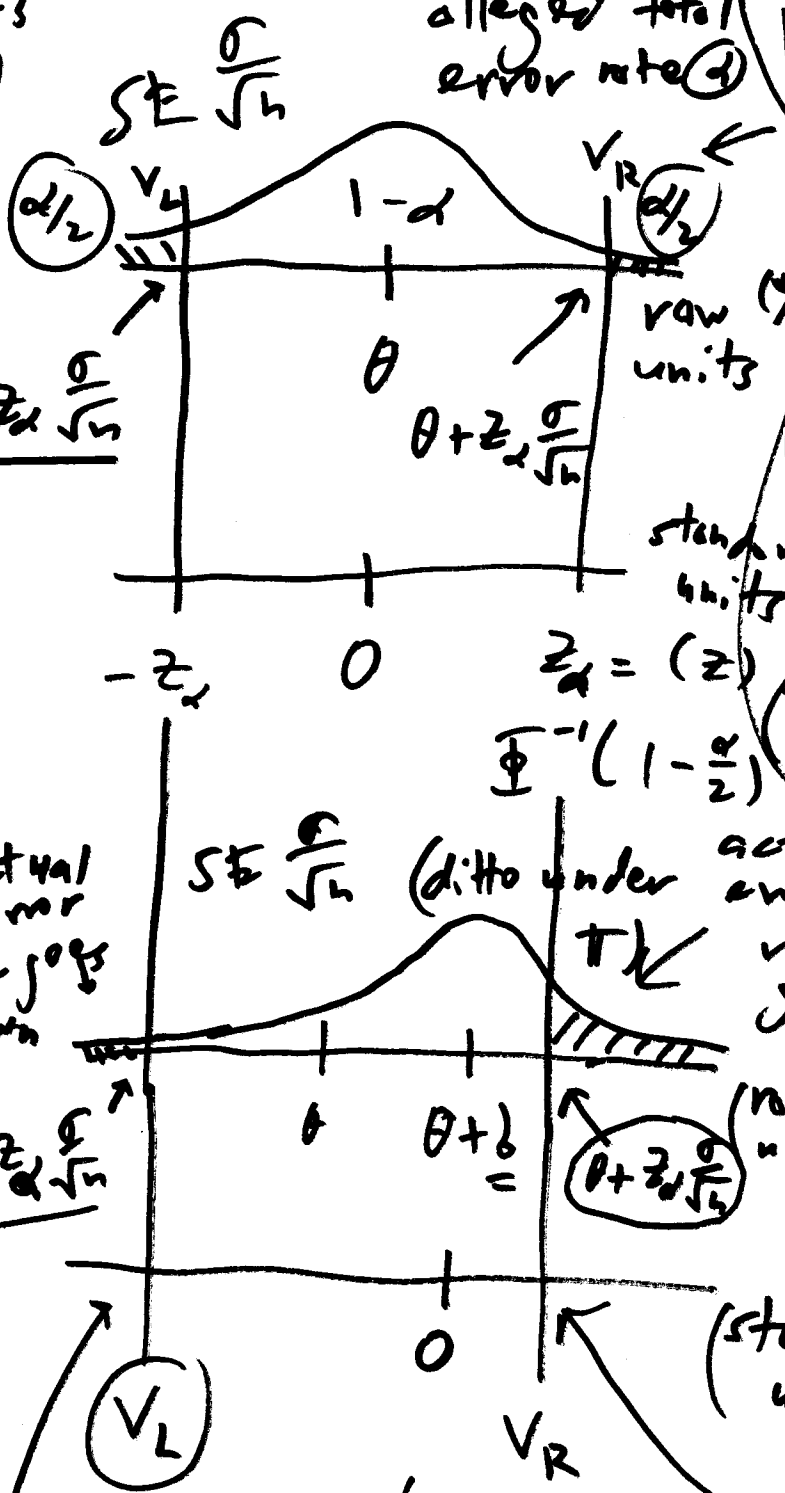
goal outcome (hit)

Converting raw units ($y$) to standard units ($z$):

$$z = \frac{y - \text{mean}(y)}{SD(y)}$$

$$y = \text{mean}(y) + z \cdot SD(y)$$

Quiz 3 (a)




PDF of $\bar{Y}_n = \bar{\theta}_n$ (2)

under [incorrect] model $M_1$

$(Y_i \mid \theta \sigma B M_1) \overset{IID}{\sim} N(\theta, \sigma^2)$

$\rightarrow (\bar{Y}_n \mid \theta \sigma B M_1) \sim N(\theta, \frac{\sigma^2}{n})$

$y = \text{mean}(y) + z \cdot SD(y)$

$= \theta - z_\alpha \frac{\sigma}{\sqrt{n}}$

$z = \frac{y - \text{mean}(y)}{SD(y)}$

$\frac{(\theta - z_\alpha \frac{\sigma}{\sqrt{n}}) - (\theta + b)}{\sigma/\sqrt{n}}$ $\quad$ $\frac{(\theta + z_\alpha \frac{\sigma}{\sqrt{n}}) - (\theta + b)}{\sigma/\sqrt{n}} = \frac{z_\alpha \frac{\sigma}{\sqrt{n}} - b}{\frac{\sigma}{\sqrt{n}}}$

$= \frac{-z_\alpha \frac{\sigma}{\sqrt{n}} - b}{\frac{\sigma}{\sqrt{n}}} = -z_\alpha - b\frac{\sqrt{n}}{\sigma}$ $\quad$ $= z_\alpha - b\frac{\sqrt{n}}{\sigma}$