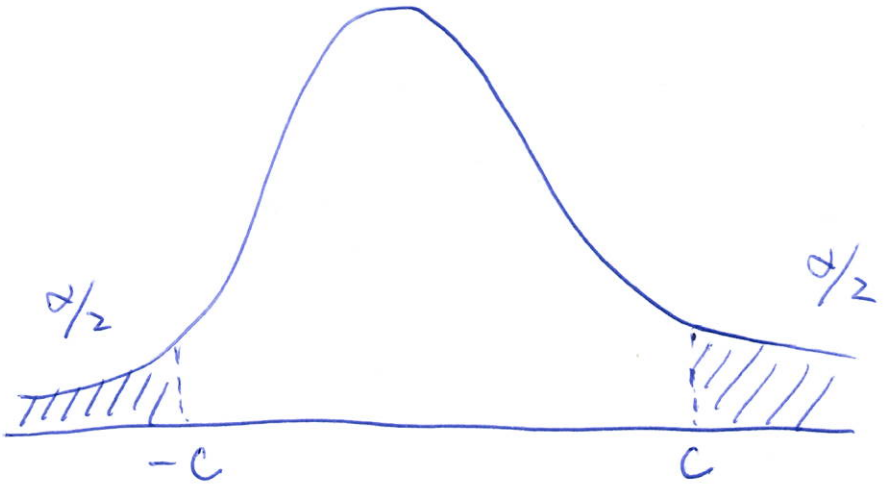
$$\frac{\hat{\beta}_j - \beta_j}{se(\hat{\beta}_j)} \sim t_{n-k-1}$$

$(1-\alpha)\%$ confidence interval,



$$-c \leq \frac{\hat{\beta}_j - \beta_j}{se(\hat{\beta}_j)} \leq c$$

$$\Leftrightarrow \; -c \cdot se(\hat{\beta}_j) - \hat{\beta}_j \leq -\beta_j \leq c \cdot se(\hat{\beta}_j) - \hat{\beta}_j$$

$$\Leftrightarrow \; \hat{\beta}_j + c \cdot se(\hat{\beta}_j) \geq \beta_j \geq \hat{\beta}_j - c \cdot se(\hat{\beta}_j).$$