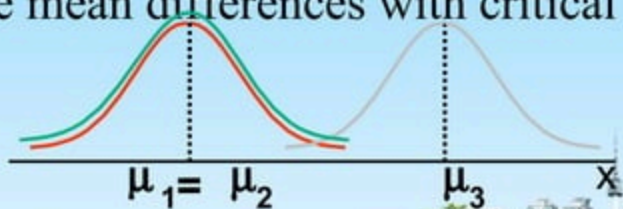


Fisher's Least Significant Difference Test

- To test **which** population means are significantly different
 - e.g.: $\mu_1 = \mu_2 \neq \mu_3$
 - Done after rejection of equal means in randomized block ANOVA design
- Allows pair-wise comparisons
 - Compare absolute mean differences with critical range



Fisher's Least Significant Difference (LSD) Test

$$\text{LSD} = t_{\alpha/2} \sqrt{\text{MSW}} \sqrt{\frac{2}{b}}$$

where:

$t_{\alpha/2}$ = Upper-tailed value from Student's t-distribution
for $\alpha/2$ and $(k - 1)(n - 1)$ degrees of freedom

MSW = Mean square within from ANOVA table

b = number of blocks

k = number of levels of the main factor

Fisher's Least Significant Difference (LSD) Test

(continued)

$$\text{LSD} = t_{\alpha/2} \sqrt{\text{MSW}} \sqrt{\frac{2}{b}}$$

Compare:

Is $|\bar{x}_i - \bar{x}_j| > \text{LSD}$?

If the absolute mean difference is greater than LSD then there is a significant difference between that pair of means at the chosen level of significance.

$$|\bar{x}_1 - \bar{x}_2|$$

$$|\bar{x}_1 - \bar{x}_3|$$

$$|\bar{x}_2 - \bar{x}_3|$$

etc...