

1. Numerator: Measure of variability across treatment groups; that is how different are the group means from each other?

Denominator: Measure of variability inherent to the process, that is, we calculate this by using the variances within each group.

2. If the MSE is large, meaning the denominator of the F statistic also large. It indicates a high level of variability within the groups, which can make it difficult to detect differences between the groups means. Usually means there are no differences between the group means.
3. If the treatment has no impact, then each \bar{y} will be equal to each other, and likewise to \bar{y} . Thus $(\bar{y}_i - \bar{y})$ will be 0, and thus MS_T will be 0.

Conversely, if the treatment has an impact, the \bar{y}_i values will be different from each other.