* The aim is to compare the EDF for a range of values of the ratio~~s~~ of the between runs variance component to the measurement error variance component, , and the between animals variance component to the measurement error variance component, .
* The first step is to construct the theoretical ANOVA table for the design that we want to examine as this contains the information we require in order to look for the EMS with pure random variation, namely the coefficients of the variance components of the residual EMS in each stratum and their corresponding degrees of freedom (DF)
* In the ANOVA Table 5.2, there are four residual MS in the Between Animals Between Runs, Within Animals Between Runs, Between Animals Within Runs and Within Animals Within Runs strata. These four residual MS are used for estimating the between runs, between animals and measurement error variance components.
* Then, the next step is to simulate the mean squares from chi-square distributions, because the mean squares are assumed to have a chi-square distribution with \nu DF and EMS \sigma^2.
* The EMSs are based on the coefficients of the variance components from the theoretical ANOVA. A set of pre-defined between runs and between animals and measurement error variance components are below:
  + The between runs variance component are set to 0, 0.25, 1, 5, 100, and as well as having the effects of run fixed.
  + For each of the between runs variance components, the between animals variance components are set with 17 values ranging from 10^{-4} to 10^4 are set for simulating mean squares.
  + The measurement error are set to 1 for all cases. So ratios of the between runs variance component to the measurement error variance component, (σ\_R^2)⁄σ^2 , and the between animals variance component to the measurement error variance component, (σ\_A^2)⁄σ^2 are same as between runs and between animals variance components, respectively.
* Once we have simulated residual MS, we can first estimate variance components using the linear combination and the residual maximum likelihood methods.