



Fig 10.2 Fictitious data illustrating the partitioning of total variation into components explained by the groups (MS_{groups}) and unexplained ($MS_{residual}$) by the groups. The gray arrows in (b) depict the relative amounts explained by the groups. The proposed groupings generally explain why the first few points are higher on the y-axis than the last three points. The gray arrows in (c) depict the relative amounts unexplained (the residuals) by the groups. The proposed groupings fail to explain the differences within the first three points and within the last three points. The probability of collecting our sample, and thus generating the sample ratio of explained to unexplained variation (or one more extreme), when the null hypothesis is true (and population means are equal) is the area under the F-distribution (d) beyond our sample F-ratio.