

We introduce the concept of functional data and the problem of functional analysis of variance, which differs from the univariate case in the fact that random functions, not random variables, are the subject of comparison. We continue by deriving an asymptotic test for functional one-way ANOVA from the elementary univariate F -test. We describe the simulation envelope test, whose global version suffers from the multiple comparisons problem. Then, an ordering is defined, based on which we create the rank envelope test, a stronger alternative to the simulation envelope test. We also describe how the rank test can be interpreted graphically. Using the rank envelope test, we devise another test for functional one-way ANOVA, which is also graphically interpretable and thus does not need a post-hoc analysis to identify which groups caused rejection of the null hypothesis. We compare the one-way ANOVA tests on a real-case study and a simulation study.