

# Tests for Multivariate Linear Models with the `car` Package

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It is straightforward to fit multivariate linear models in *R* with the `lm` function: Simply specify the left-hand side of the linear-model formula as a matrix of responses. *R* also has facilities for testing multivariate linear models via the `anova` function (as described in [Dalgaard, 2007](#)). Although the `anova` function is very flexible, applied to a multivariate linear model it calculates sequential (often termed “type I”) tests, which rarely are of interest, and performing other common tests, especially for repeated-measures designs, is relatively inconvenient. In contrast, the `Anova` function in the `car` package (associated with [Fox and Weisberg, 2011](#)) can perform partial tests for the terms in a multivariate linear model, either obeying the principle of marginality (“type II” tests) or violating it (“type III” tests), including simply specified multivariate and univariate tests for repeated-measures models. In addition, the `linearHypothesis` function in the `car` package can test arbitrary linear hypothesis for multivariate linear models, including models for repeated measures. Both the `Anova` and `linearHypothesis` functions and their associated summary methods return a variety of information useful in further computation on multivariate linear models, such as the graphical display of hypothesis tests (see, e.g., [Fox et al., 2009](#)).

## References

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