Multiple Comparison Procedures To A Control

For AN(C)OVA Models

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Contents

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Basic Information

Automatic statistics for the file:

File
mtept.csv

Your selection for the encoding: UTF-8
Your selection for the decimal character: .
Observations (rows with at least one non-missing value): 111
Variables (columns with at least one non-missing value): 6
Variables considered continuous: 4

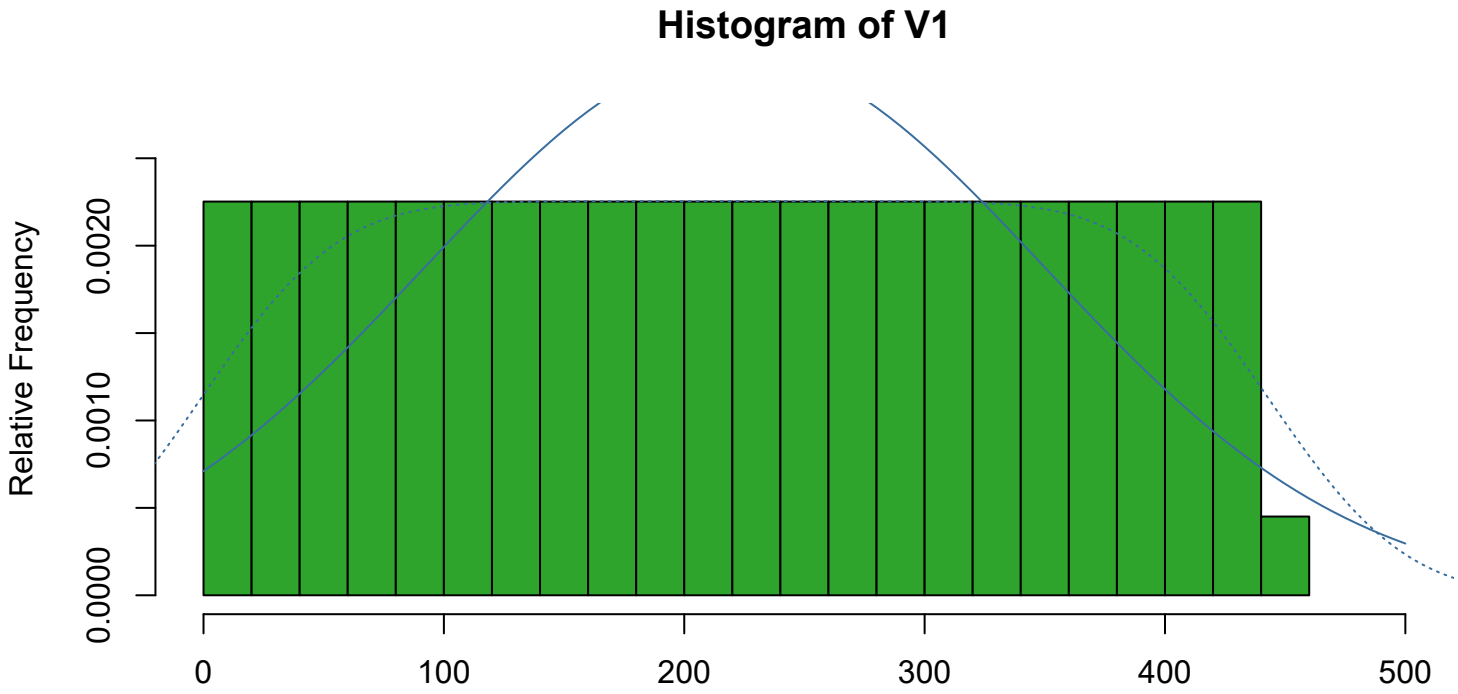
Variables considered continuous
V1

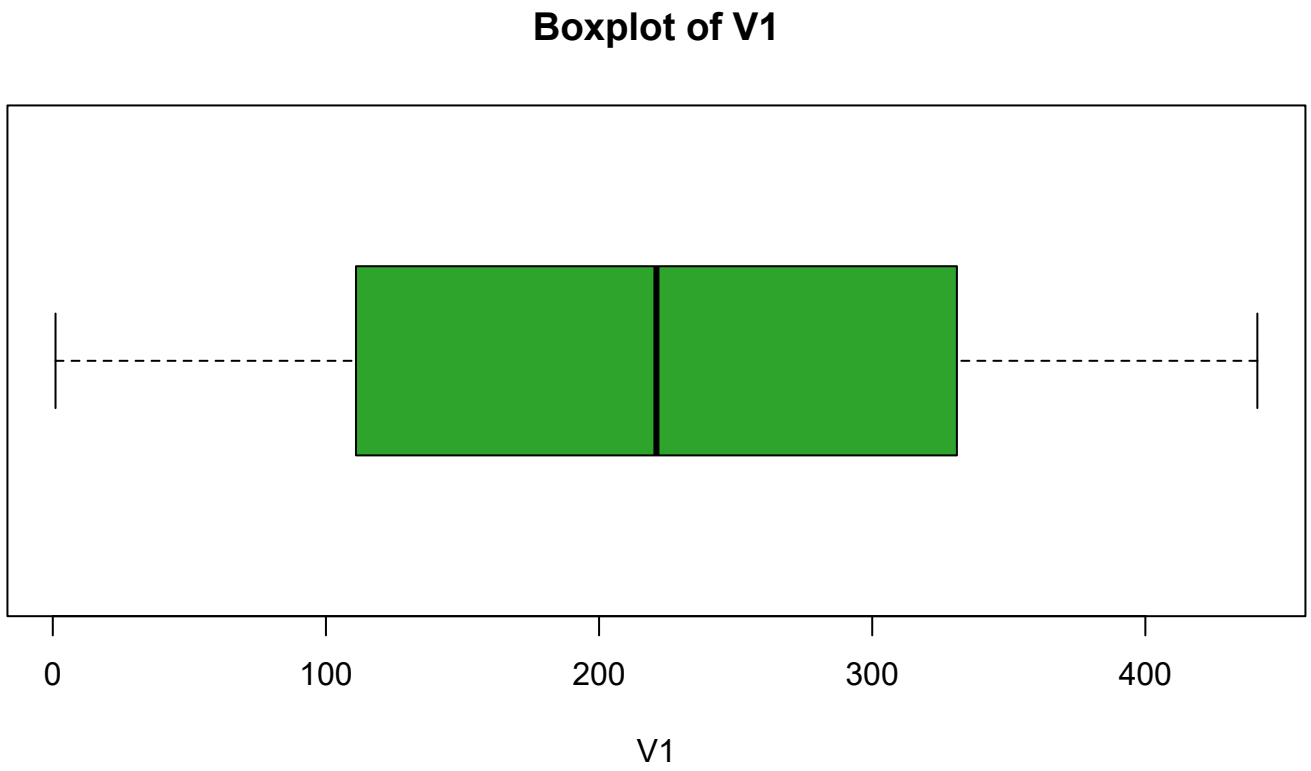
Variables considered categorical: 2

Variables considered categorical
treatment
E1

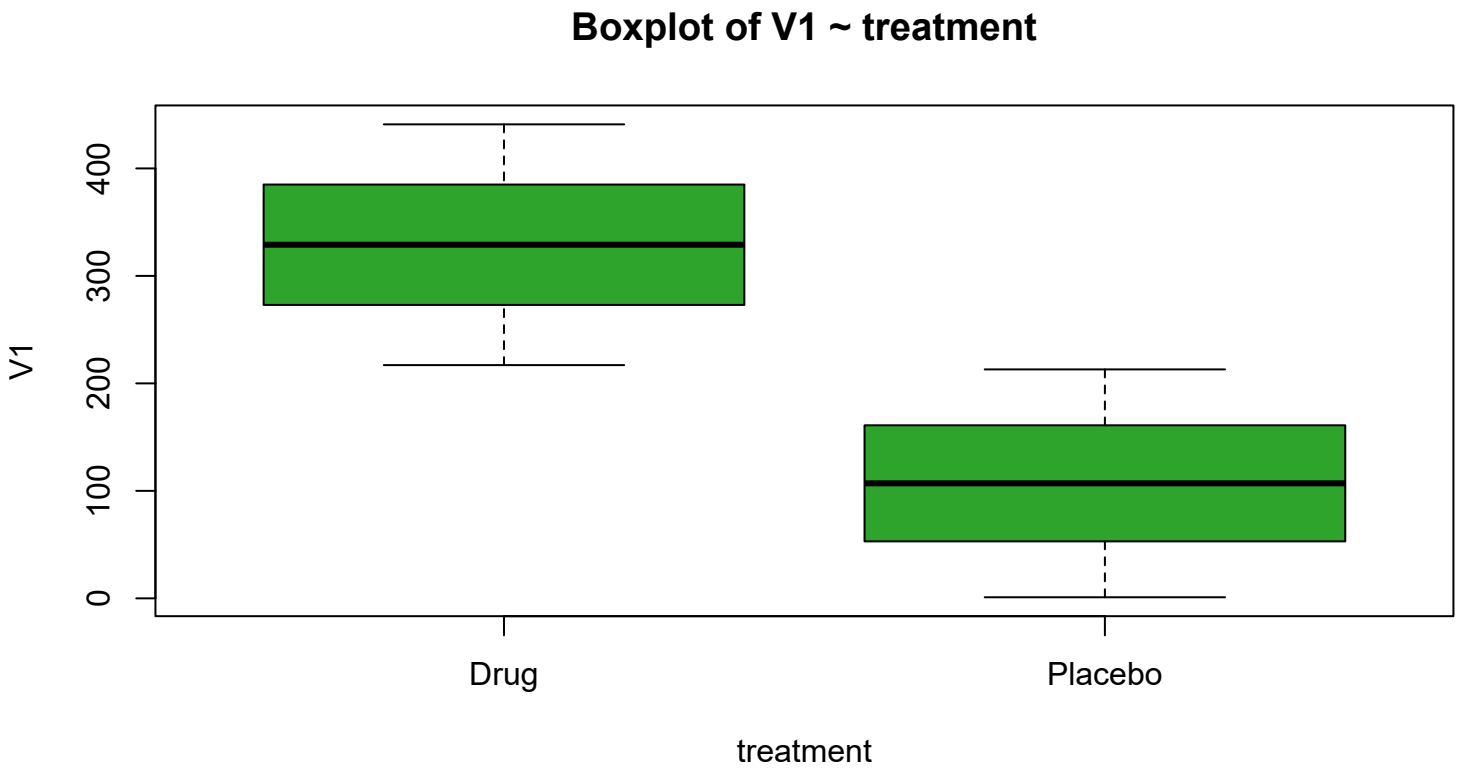
Descriptive Plots

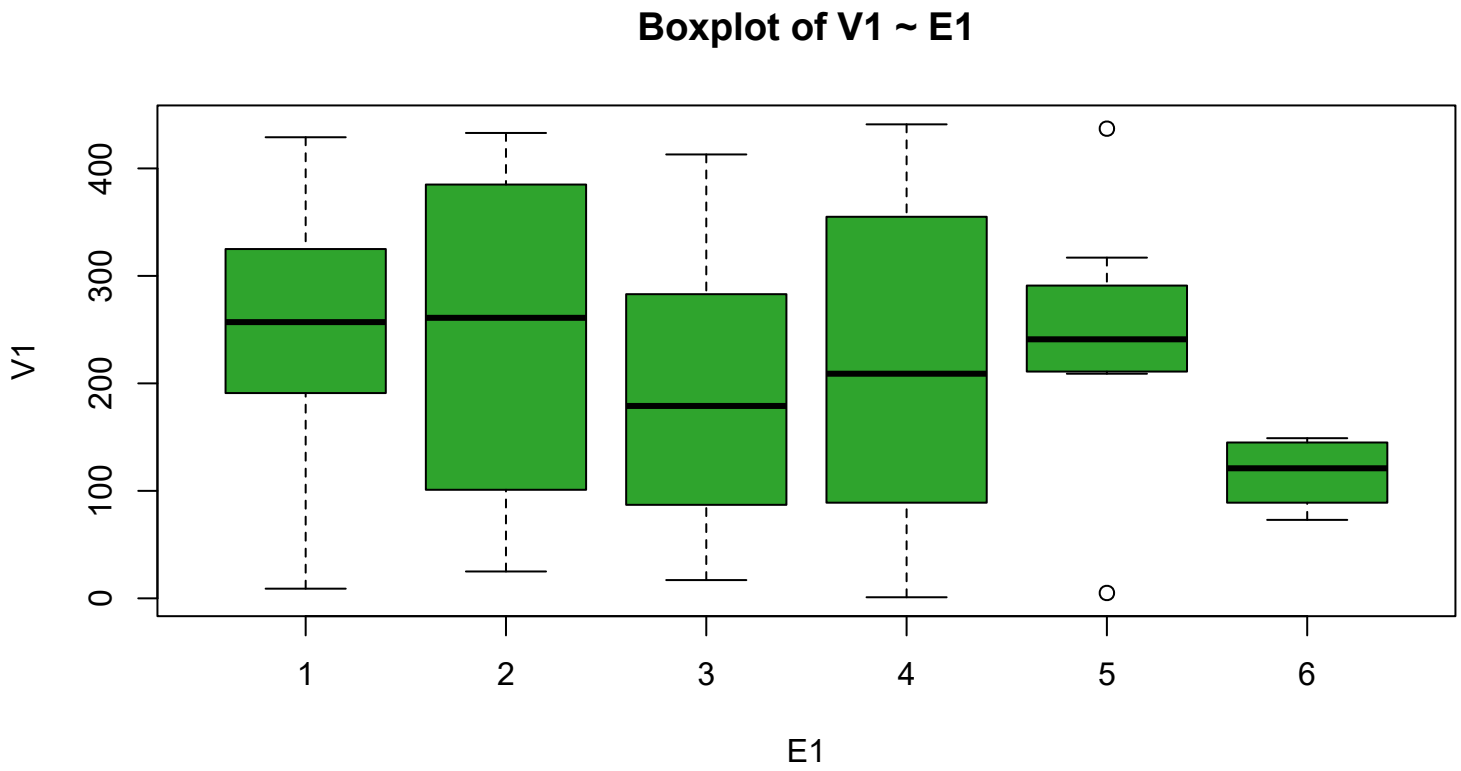
Histogram and Boxplot for dependent Variable



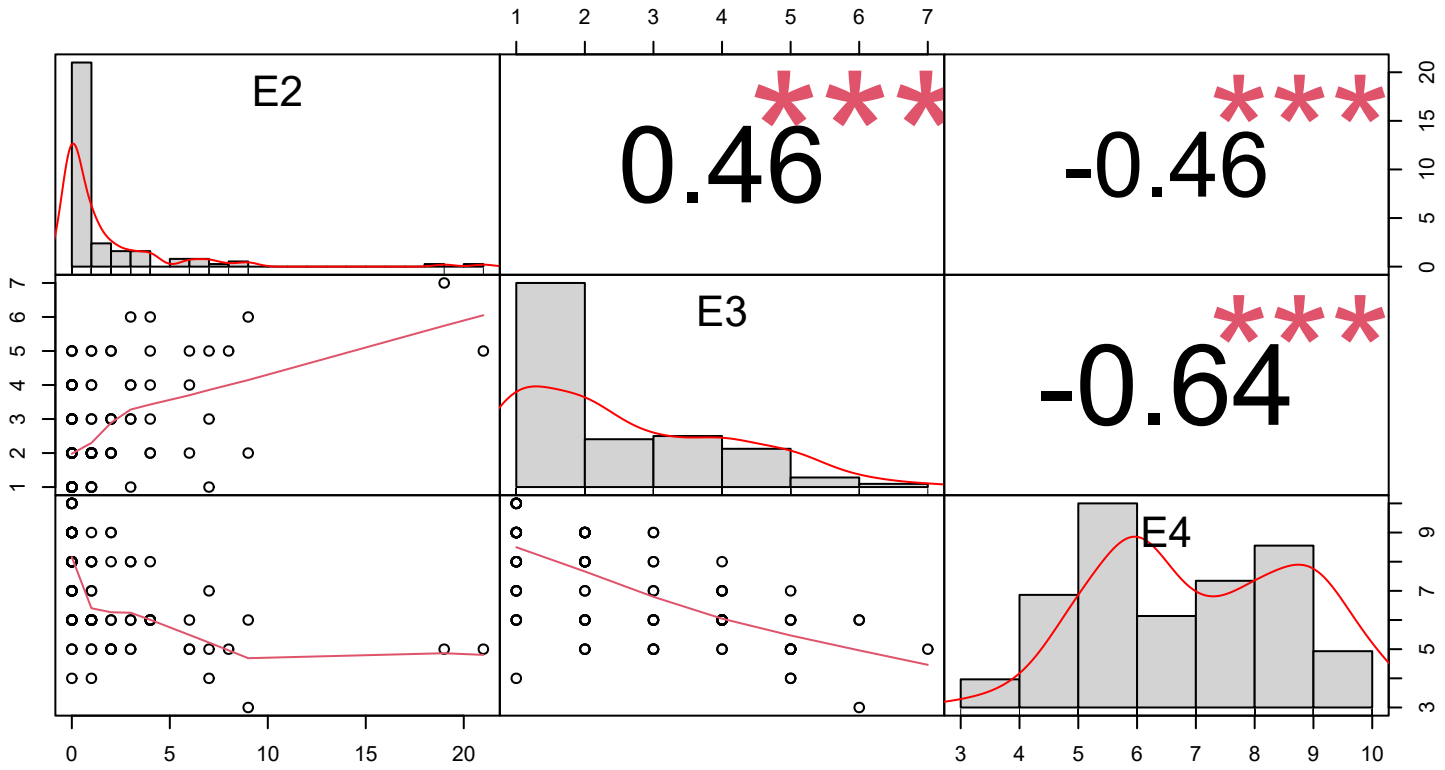


Boxplot for categorical independent Variable


Boxplot of V1 ~ treatment
V1
0
100
200
300
400
Drug
Placebo
treatment

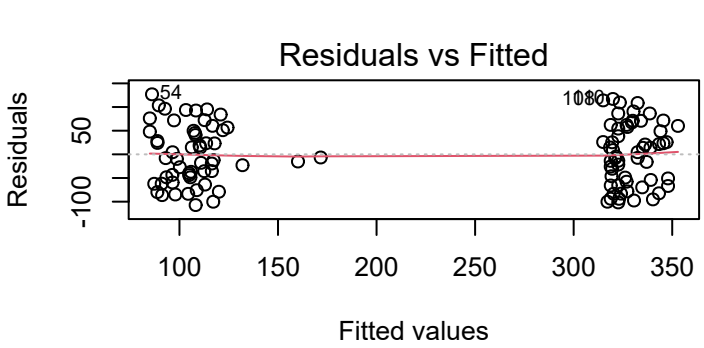


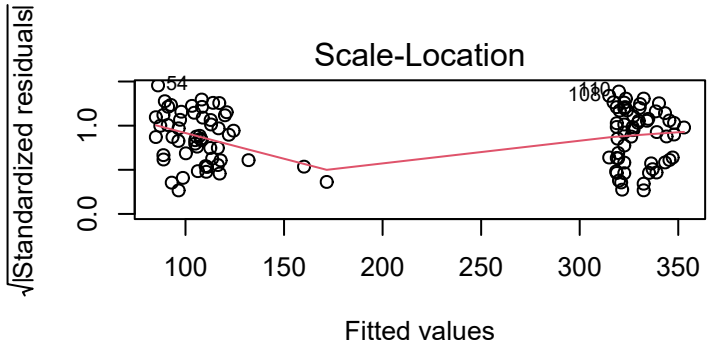
Scatterplot for numerical independent Variable

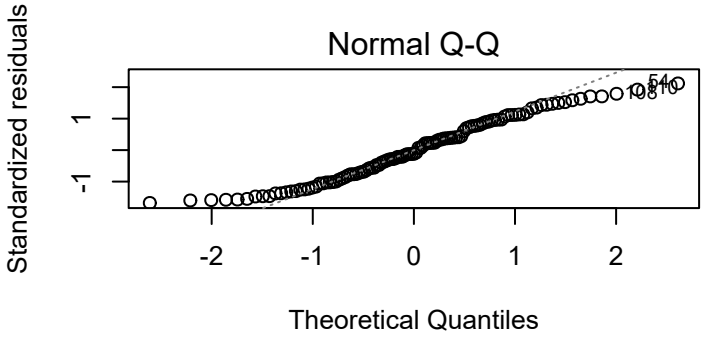


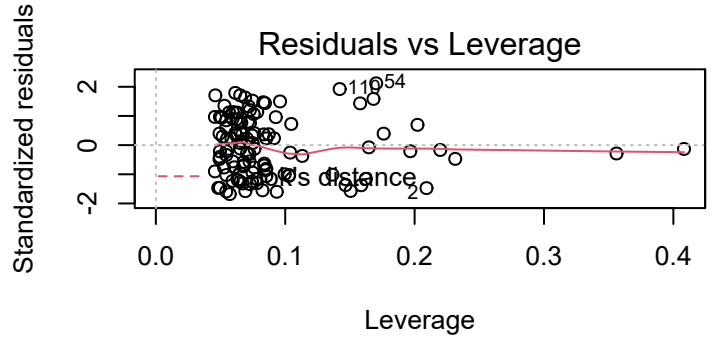

```
Anova Table (Type III tests)

Response: V1
             Sum Sq  Df  F value    Pr(>F)
(Intercept)   97355   1  22.5086 6.897e-06 ***
treatment   1224310   1 283.0606 < 2.2e-16 ***
E1             9201   5   0.4254    0.8300
E2             9499   1   2.1963    0.1415
E3               65   1   0.0149    0.9030
E4             1746   1   0.4036    0.5267
Residuals    436851 101
---
```

```
Signif. codes:  0 '***' 0.001 '**' 0.01 '*' 0.05 '.' 0.1 ' ' 1
```










```
     Simultaneous Tests for General Linear Hypotheses

Multiple Comparisons of Means: Dunnett Contrasts


Fit: lm(formula = modelfunction, data = df_factorized)

Linear Hypotheses:
                    Estimate Std. Error t value Pr(<t)
Placebo - Drug >= 0  -230.01      13.67  -16.82 <2e-16 ***
```

```
---
Signif. codes:  0 '***' 0.001 '**' 0.01 '*' 0.05 '.' 0.1 ' ' 1
(Adjusted p values reported -- single-step method)

     Simultaneous Confidence Intervals

Multiple Comparisons of Means: Dunnett Contrasts


Fit: lm(formula = modelfunction, data = df_factorized)

Quantile = 1.6601
95% family-wise confidence level


Linear Hypotheses:
                    Estimate  lwr       upr
Placebo - Drug >= 0 -230.0051      -Inf -207.3102

     Simultaneous Tests for General Linear Hypotheses

Multiple Comparisons of Means: Dunnett Contrasts


Fit: lm(formula = modelfunction, data = df_factorized)

Linear Hypotheses:
                    Estimate Std. Error t value Pr(<t)
Placebo - Drug >= 0  -230.01      13.67  -16.82 <2e-16 ***
---
Signif. codes:  0 '***' 0.001 '**' 0.01 '*' 0.05 '.' 0.1 ' ' 1
(Adjusted p values reported -- free method)

     Simultaneous Tests for General Linear Hypotheses

Multiple Comparisons of Means: Dunnett Contrasts


Fit: lm(formula = modelfunction, data = df_factorized)

Linear Hypotheses:
                    Estimate Std. Error t value Pr(<t)
Placebo - Drug >= 0  -230.01      13.51  -17.03 <2e-16 ***
---
```

```
Signif. codes:  0 '***' 0.001 '**' 0.01 '*' 0.05 '.' 0.1 ' ' 1
(Adjusted p values reported -- single-step method)

     Simultaneous Confidence Intervals

Multiple Comparisons of Means: Dunnett Contrasts


Fit: lm(formula = modelfunction, data = df_factorized)

Quantile = 1.6601
95% family-wise confidence level


Linear Hypotheses:
                    Estimate  lwr       upr
Placebo - Drug >= 0 -230.0051      -Inf -207.5828

     Simultaneous Tests for General Linear Hypotheses

Multiple Comparisons of Means: Dunnett Contrasts


Fit: lm(formula = modelfunction, data = df_factorized)

Linear Hypotheses:
                    Estimate Std. Error t value Pr(<t)
Placebo - Drug >= 0  -230.01      13.51  -17.03 <2e-16 ***
---
Signif. codes:  0 '***' 0.001 '**' 0.01 '*' 0.05 '.' 0.1 ' ' 1
(Adjusted p values reported -- free method)
```

References

Fox, John, and Sanford Weisberg. 2019. *An R Companion to Applied Regression*. Third. Thousand Oaks CA: Sage. https://socialsciences.mcmaster.ca/jfox/Books/Companion/.

Gross, Juergen, and Uwe Ligges. 2015. *Nortest: Tests for Normality*. https://CRAN.R-project.org/package=nortest.

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R Core Team. 2019. *R: A Language and Environment for Statistical Computing*. Vienna, Austria: R Foundation for Statistical Computing. https://www.R-project.org/.

Zeileis, Achim, and Torsten Hothorn. 2002. "Diagnostic Checking in Regression Relationships." *R News* 2 (3): 7–10. https://CRAN.R-project.org/doc/Rnews/.