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
recovery.csv

Your selection for the encoding: UTF-8
Your selection for the decimal character: .
Observations (rows with at least one non-missing value): 41
Variables (columns with at least one non-missing value): 2
Variables considered continuous: 1

Variables considered continuous
minutes

Variables considered categorical: 1

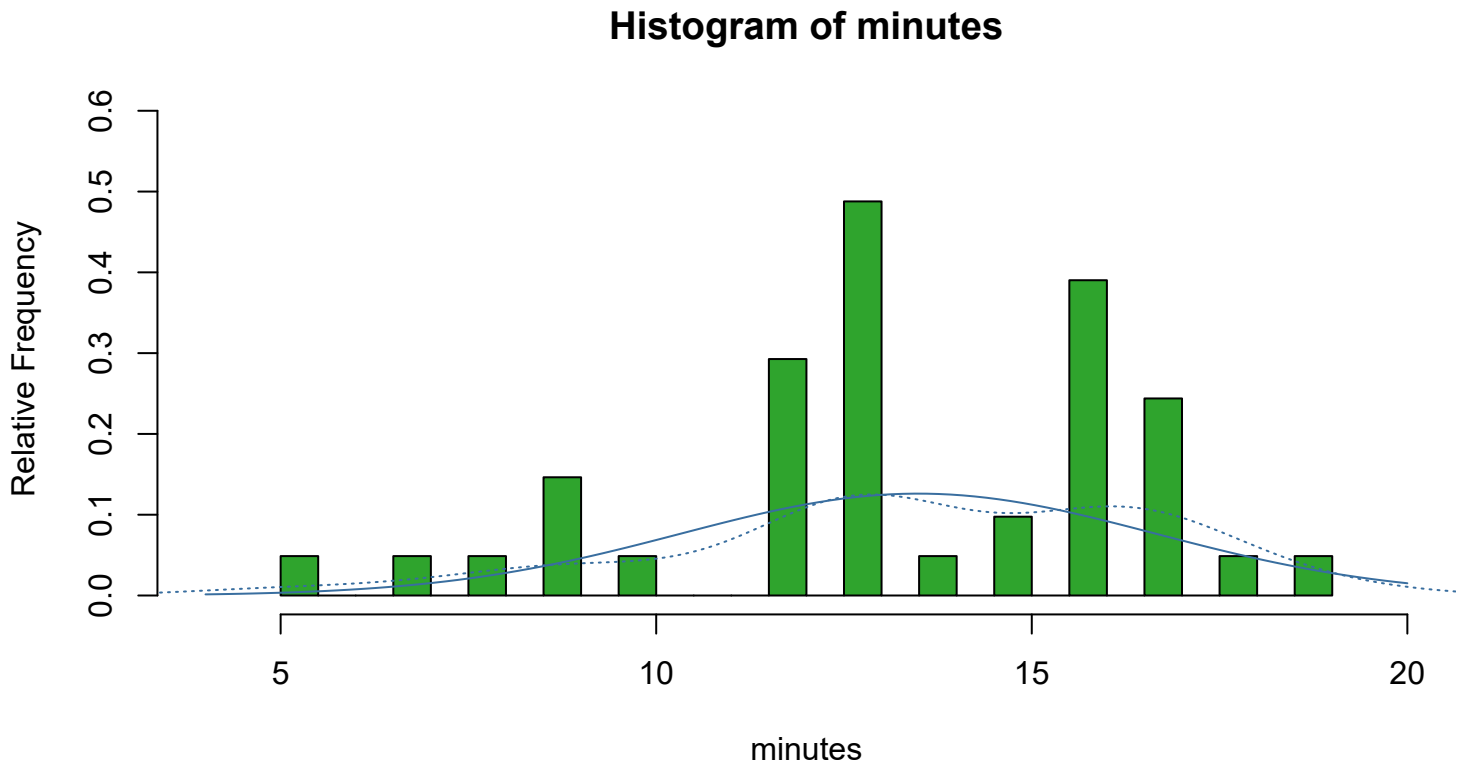
Variables considered categorical
blanket

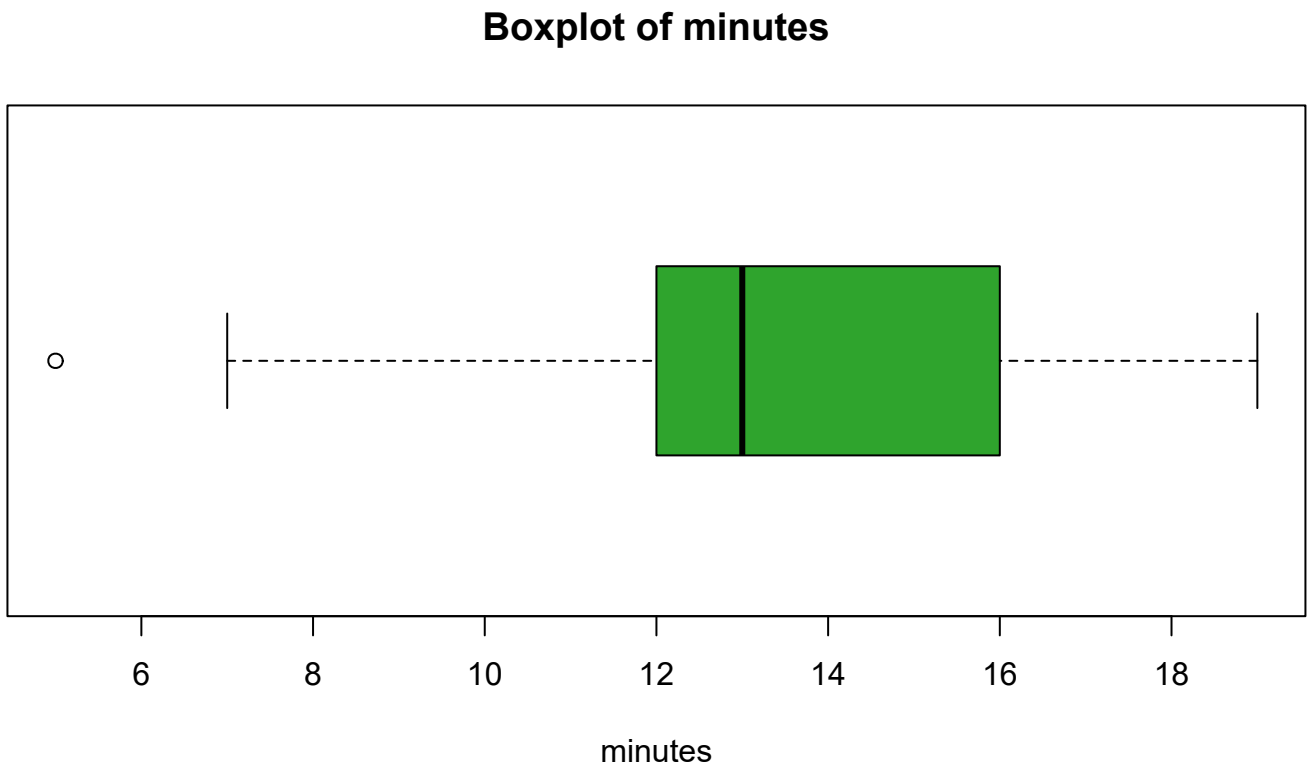
Model Information

You defined the following linear model: minutes~blanket
You are interested in the factor: blanket
You are interested in pairwise comparisons to the control factor level: b0

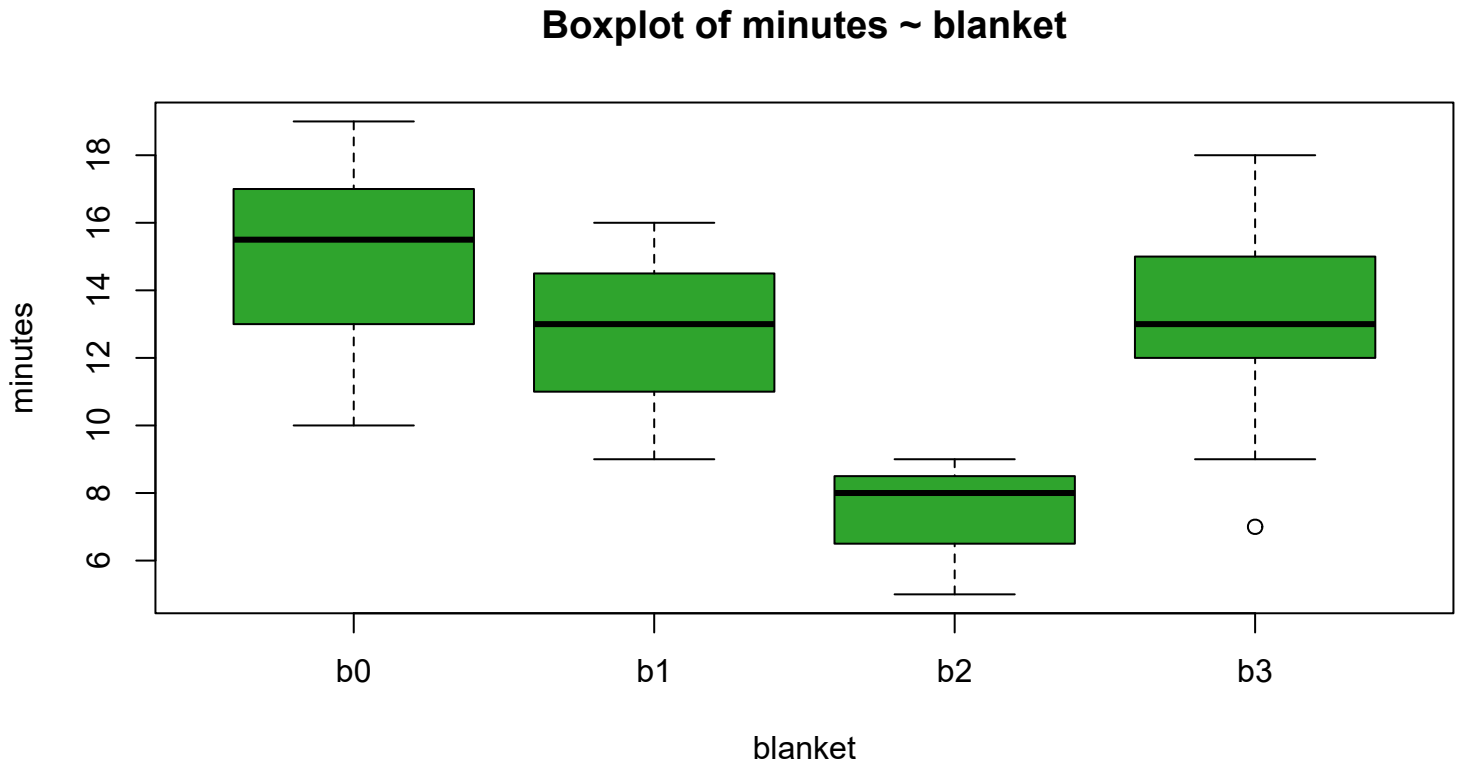
Descriptive Plots

Dependent Variable



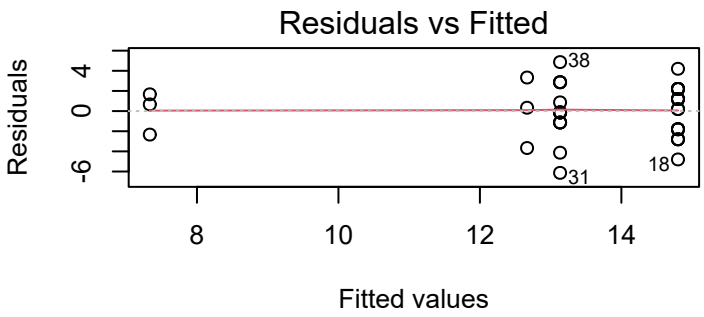

Boxplot of minutes
6
8
10
12
14
16
18
minutes

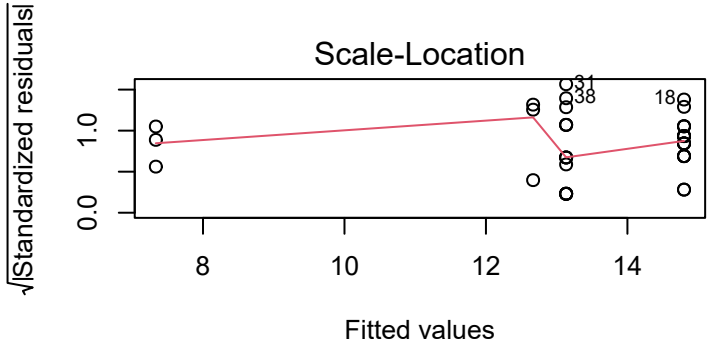
Dependent Against Categorical Factors

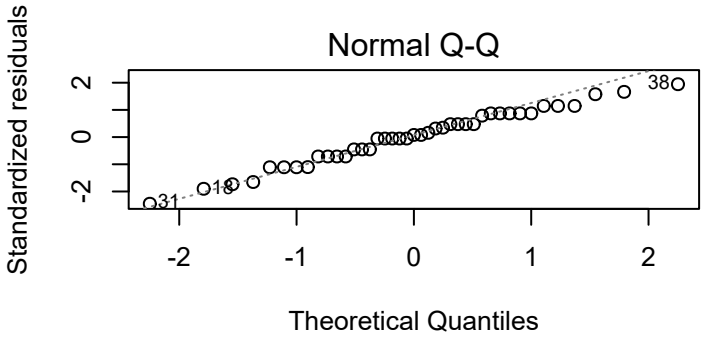


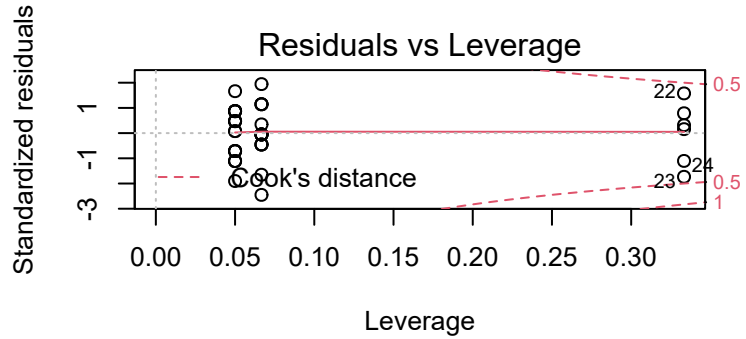
```
Anova Table (Type III tests)

Response: minutes
            Sum Sq Df  F value    Pr(>F)
(Intercept) 4380.8  1 652.8851 < 2.2e-16 ***
blanket      152.0  3   7.5499 0.0004619 ***
Residuals    248.3 37
---
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)
b1 - b0 >= 0  -2.1333     1.6038  -1.330 0.2411
b2 - b0 >= 0  -7.4667     1.6038  -4.656 <0.001 ***
b3 - b0 >= 0  -1.6667     0.8848  -1.884 0.0923 .
---
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 = 2.1823
95% family-wise confidence level


Linear Hypotheses:
             Estimate lwr     upr
b1 - b0 >= 0 -2.1333     -Inf  1.3667
b2 - b0 >= 0 -7.4667     -Inf -3.9667
b3 - b0 >= 0 -1.6667     -Inf  0.2642
```

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.

Madsen, Jacob H. 2018. *DDoutlier: Distance & Density-Based Outlier Detection*. https://CRAN.R-project.org/package=DDoutlier.

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/.