

Multiple Comparison Procedures To A Control

For AN(C)OVA Models

Statsomat.com

Contributors*

28 April 2021

Contents

Basic Information

2

References

9

*Denise Welsch, Markus Neuhäuser, Viktoria Daum, Linda Müller, Damian Nink, Simone Schüttler, Daniela Wüller

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

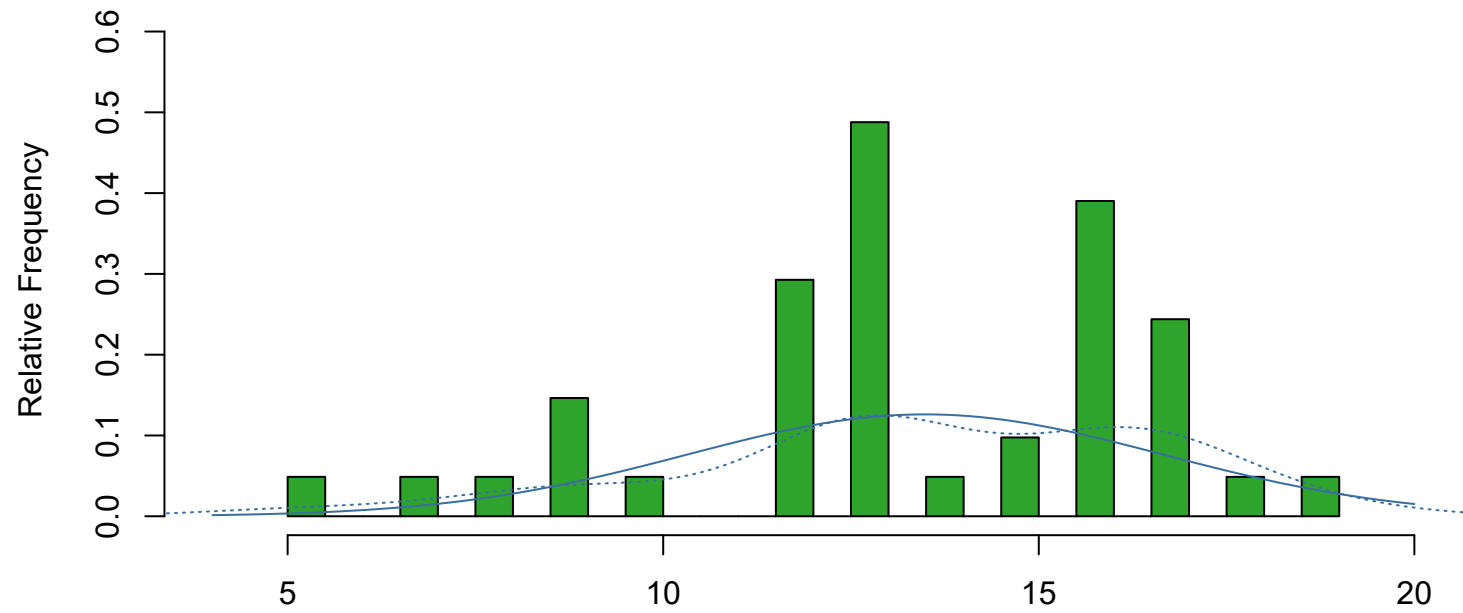
Variables considered continuous: 1

Variables considered continuous

Variables considered categorical: 1

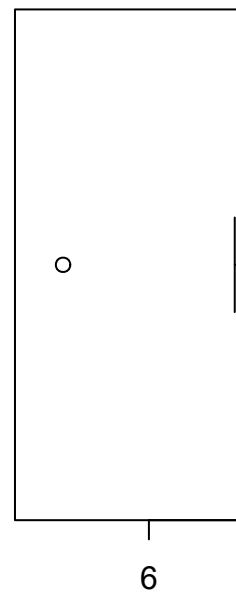
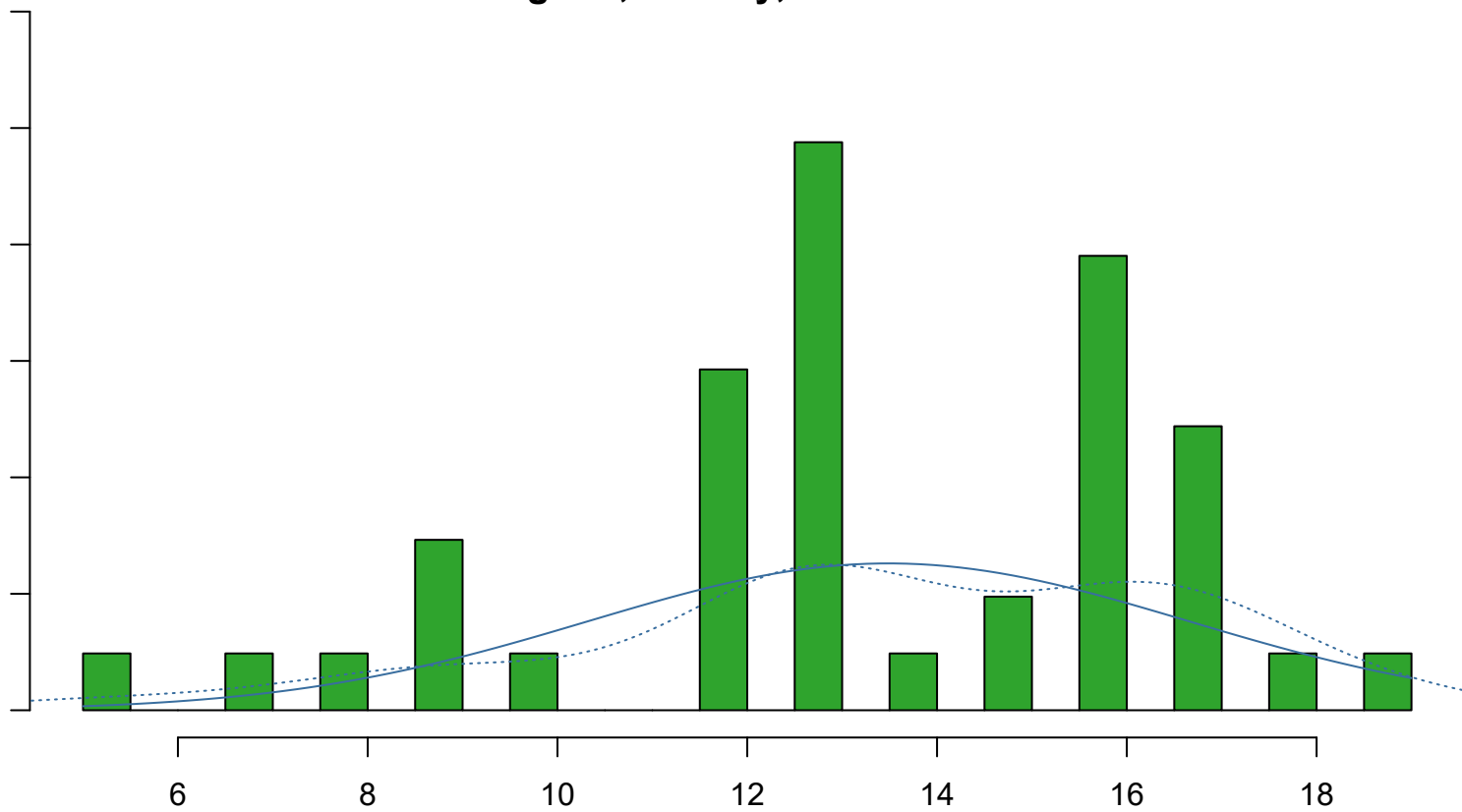
Variables considered categorical
blanket

Histogram of minutes

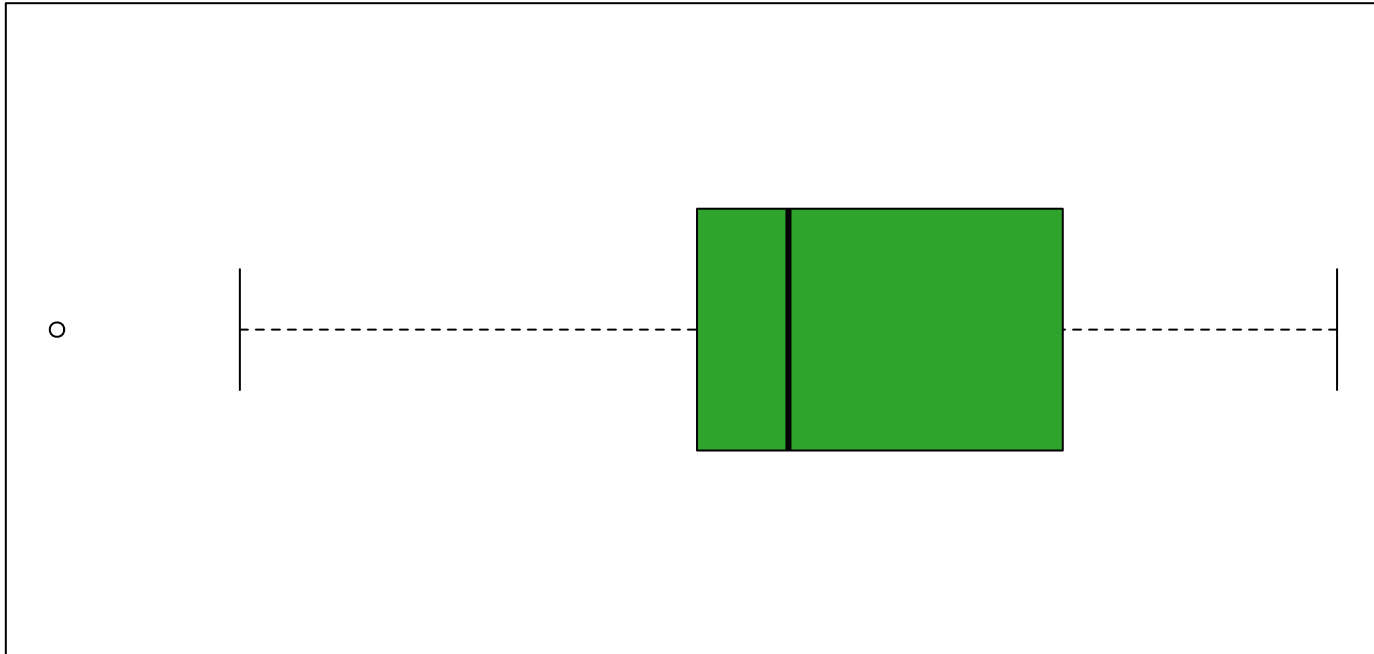


\pagebreak

Histogram, Density, and Normal Fit



minutes

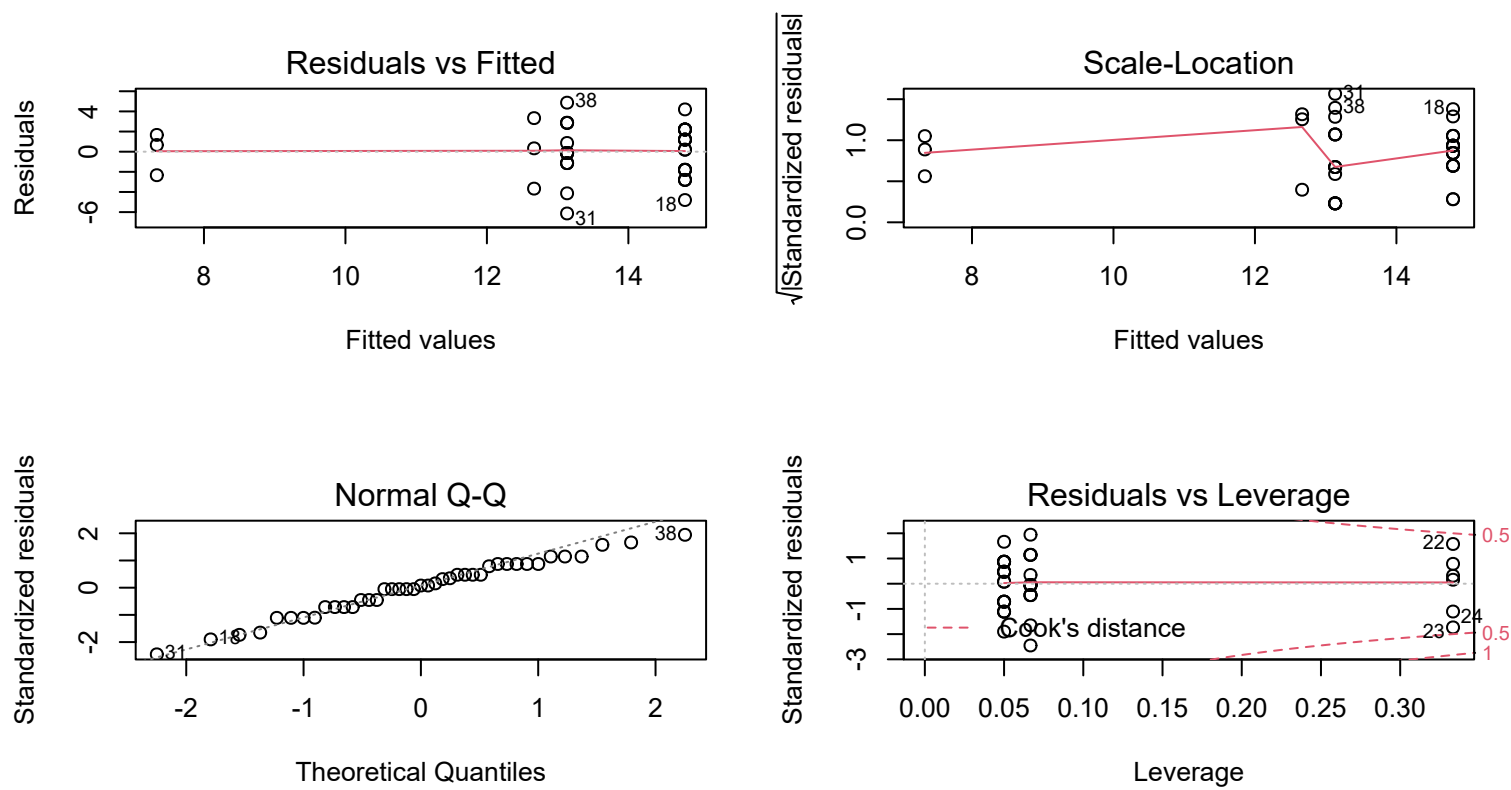


Anova Table (Type III tests)

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	0.2412
b2 - b0 >= 0	-7.4667	1.6038	-4.656	<0.001 ***
b3 - b0 >= 0	-1.6667	0.8848	-1.884	0.0924 .

```

---
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 = 2.1824
95% family-wise confidence level
```

Linear Hypotheses:

	Estimate	lwr	upr
b1 - b0 >= 0	-2.1333	-Inf	1.3667
b2 - b0 >= 0	-7.4667	-Inf	-3.9666
b3 - b0 >= 0	-1.6667	-Inf	0.2642

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	0.0958 .
b2 - b0 >= 0	-7.4667	1.6038	-4.656	5.84e-05 ***
b3 - b0 >= 0	-1.6667	0.8848	-1.884	0.0640 .

```

---
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)
b1 - b0 >= 0  -2.1333     1.7346  -1.230 0.2794
b2 - b0 >= 0  -7.4667     1.1095  -6.730 <1e-04 ***
b3 - b0 >= 0  -1.6667     0.8642  -1.929 0.0846 .
---
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 = 2.1816
95% family-wise confidence level
```

```

Linear Hypotheses:
      Estimate lwr      upr
b1 - b0 >= 0 -2.1333    -Inf  1.6507
b2 - b0 >= 0 -7.4667    -Inf -5.0463
b3 - b0 >= 0 -1.6667    -Inf  0.2186

```

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     1.7346  -1.230   0.113
b2 - b0 >= 0  -7.4667     1.1095  -6.730 4.17e-08 ***
b3 - b0 >= 0  -1.6667     0.8642  -1.929   0.059 .
---
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>.
- 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/>.