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): 5
Variables considered continuous: 3

Variables considered continuous

Variables considered categorical: 2

Variables considered categorical
treatment
E1

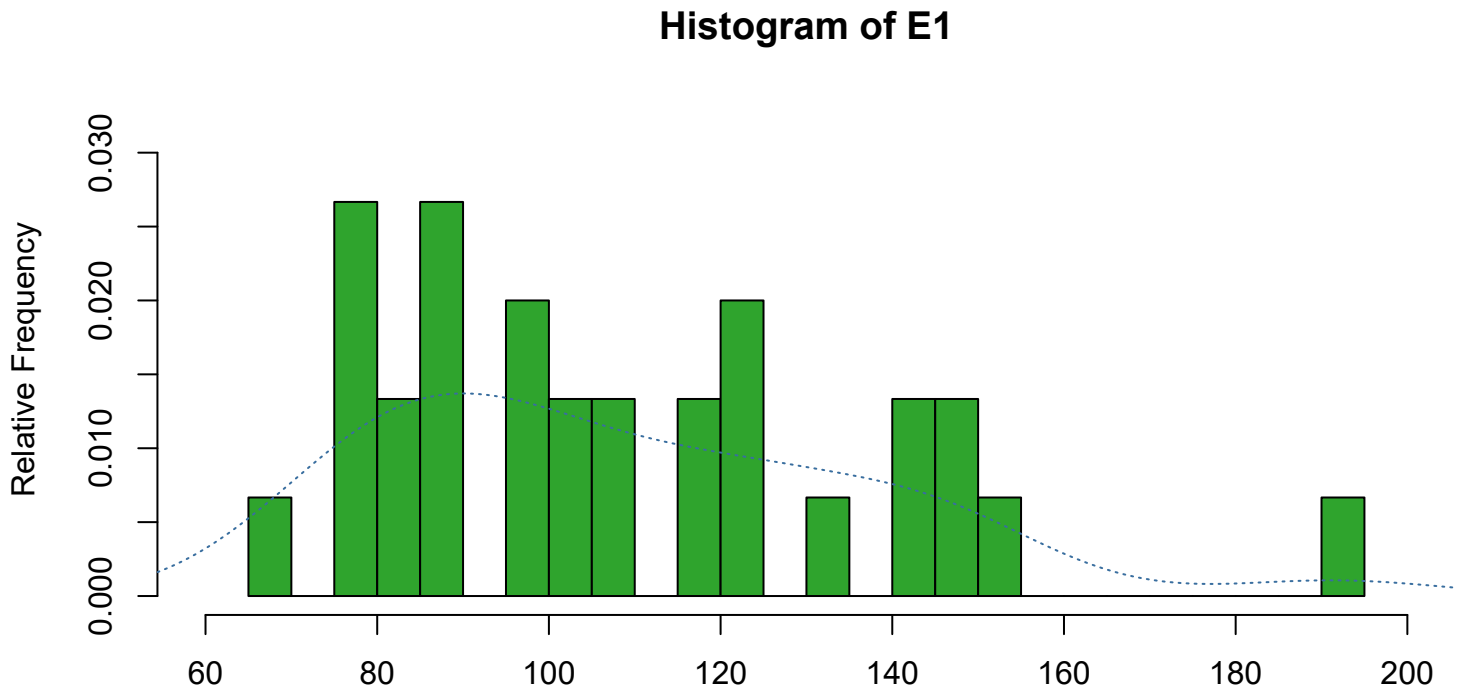
```
Error in data.frame(..., check.names = FALSE): arguments imply differing number of rows: 111, 30
```

Descriptive Plots

Histogram and Boxplot for dependent Variable

```
Error in hist.default(x, plot = FALSE, breaks = breaks): 'x' must be numeric
```

```
Error in density.default(x, na.rm = TRUE): argument 'x' must be numeric
```




```
Error in plot.window(ylim = xlim, xlim = ylim, log = log, xaxs = pars$yaxs): endliche 'xlim' Werte nötig
```

Boxplot for categorical independent Variable

```
Error in eval(predvars, data, env): Objekt 'E1' nicht gefunden
```

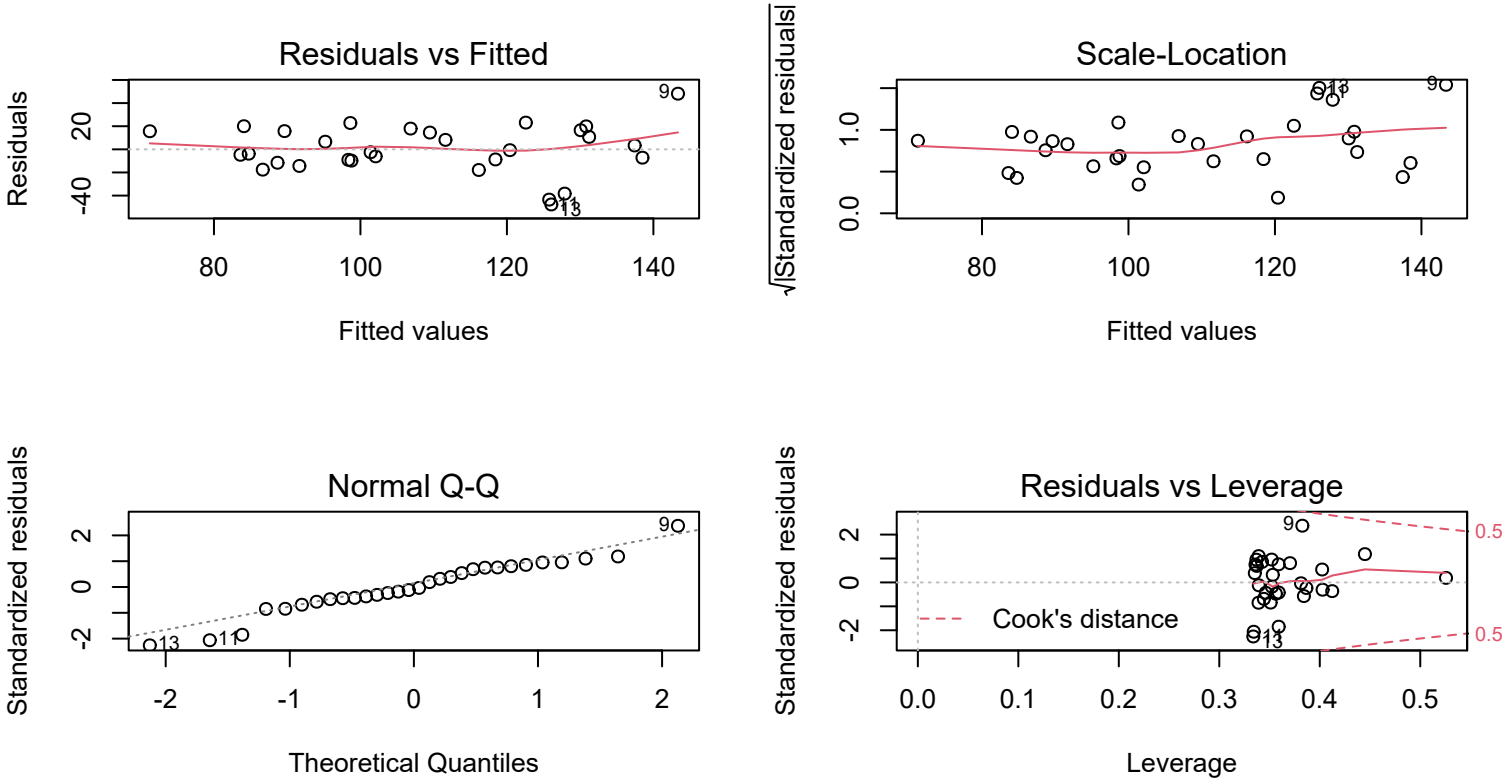
Scatterplot for numerical independent Variable

```
Error in relevel.default(df_factorized[, factor_index], ref = modelsplit[3]): 'relevel' only for (unordered) factors
```

```
Error in eval(predvars, data, env): Objekt 'E1' nicht gefunden
```

```
Anova Table (Type III tests)

Response: Y1
             Sum Sq Df F value  Pr(>F)
(Intercept)  1484.8  1  2.2238 0.15231
Loc          4413.1  5  1.3219 0.29699
Var           261.9  4  0.0980 0.98181
Y2           2328.3  1  3.4871 0.07735 .
Residuals   12685.8 19
---
Signif. codes:  0 '***' 0.001 '**' 0.01 '*' 0.05 '.' 0.1 ' ' 1
```




```
Error in mcp2matrix(model, linfct = linfct): Variable(s) 'treatment' have been specified in 'linfct' but cannot be found in 'model'!

     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)
C - UF >= 0     30.16      18.42   1.637  0.998
D - UF >= 0     30.05      16.57   1.813  0.999
```

```
GR - UF >= 0    23.83      17.15   1.390  0.995
M - UF >= 0     35.82      16.47   2.175  1.000
W - UF >= 0     11.01      16.41   0.671  0.965
(Adjusted p values reported -- single-step method)
```

```
     Simultaneous Confidence Intervals

Multiple Comparisons of Means: Dunnett Contrasts


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

Quantile = 2.4094
95% family-wise confidence level


Linear Hypotheses:
             Estimate lwr     upr
C - UF >= 0  30.1552     -Inf 74.5443
D - UF >= 0  30.0469     -Inf 69.9817
GR - UF >= 0 23.8332     -Inf 65.1514
M - UF >= 0  35.8186     -Inf 75.4910
W - UF >= 0  11.0114     -Inf 50.5573
```

```
     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)
C - UF >= 0     30.16      18.42   1.637  0.994
D - UF >= 0     30.05      16.57   1.813  0.994
GR - UF >= 0    23.83      17.15   1.390  0.993
M - UF >= 0     35.82      16.47   2.175  0.994
W - UF >= 0     11.01      16.41   0.671  0.965
(Adjusted p values reported -- free method)
```

```
Error in mcp2matrix(model, linfct = linfct): Variable(s) 'treatment' have been specified in 'linfct' but cannot be found in 'model'!
```

```
     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)
C - UF >= 0    30.155     18.059   1.670  0.998
D - UF >= 0    30.047      8.176   3.675  1.000
GR - UF >= 0   23.833     12.246   1.946  0.999
M - UF >= 0    35.819      8.949   4.002  1.000
W - UF >= 0    11.011      8.134   1.354  0.996
(Adjusted p values reported -- single-step method)
```

Simultaneous Confidence Intervals

```
Multiple Comparisons of Means: Dunnett Contrasts


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

Quantile = 2.4011
95% family-wise confidence level


Linear Hypotheses:
             Estimate lwr     upr
C - UF >= 0  30.1552     -Inf 73.5170
D - UF >= 0  30.0469     -Inf 49.6781
GR - UF >= 0 23.8332     -Inf 53.2368
M - UF >= 0  35.8186     -Inf 57.3064
W - UF >= 0  11.0114     -Inf 30.5417
```

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)
C - UF >= 0    30.155     18.059   1.670  0.998
```

```
D - UF >= 0    30.047      8.176   3.675  1.000
GR - UF >= 0   23.833     12.246   1.946  0.998
M - UF >= 0    35.819      8.949   4.002  1.000
W - UF >= 0    11.011      8.134   1.354  0.996
(Adjusted p values reported -- free method)
```

References

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

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