# A Handbook of Statistical Analyses Using R

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CHAPTER 16

# Errata

The document gives a list of typos, errors, inconsistencies etc. which have been spotted. Moreover, small numeric output differences which are due to updated packages are reported here. To get a full list of differences run `R CMD check HSAUR` on the source package. All issues marked with **R1**, **R2** etc have been silently fixed in first reprint, second reprint etc.

**Preface**

Typo in name of vignette for Chapter 1, should read

```
R> vignette("Ch_introduction_to_R", package = "HSAUR")
```

and

```
R> edit(vignette("Ch_introduction_to_R", package = "HSAUR"))
```

As of version 1.0-3, only the correctly named vignette is available (**R1**).

**16.1 Introduction to R**

- Type at page 11: '.' needs to be double-quoted in `list.files` (**R1**)
- Typo at page 20 (Ex. 1.5): number of companies, not number of countries (**R1**).

**16.2 Simple Inference**

Typo at page 31, code line 4: use argument `varwidth = TRUE`, not `var.width = TRUE` (**R1**).

**16.3 Conditional Inference**

- The names of the test statistics in the output have been changed from `T` to `Z` or `chi-squared` throughout the chapter (**R1**).
- Reference Hothorn et al. (2006a) updated (**R1**)

**16.4 Analysis of Variance**

Figure 4.3 had wrong line types in legend (Beef and Cereal interchanged) (**R2**).

### 16.5 Multiple Linear Regression

- Page 74, Table 5.1: The values for `cloudcover` and `sne` had to be exchanged. The corresponding coefficients and Figures in this chapter change accordingly (**R1**).

- Page 83: both `fitted` and `predict` can be used to compute fitted values, the later on can be applied to new unseen data as well (**R1**).

- Page 87: $\hat{y}_i$ instead of $\hat{y}$ in the definition of the standardized residual.

### 16.6 Logistic Regression and Generalised Linear Models

- page 97: predictions are to be computed for `plasma_glm_2`, not `plasma_glm_1` (affects Figure 6.4) (**R2**).

- Function `myplot` (page 100): the `vfont` argument in `text` has been changed to `family = "HersheySerif"` (the resulting plots remain the same) (**R1**).

### 16.7 Density Estimation

- Page 117: typo: in instead of is

- Page 121: small numeric differences for the output of `optim`

- update to *mclust* version 3.0-0 (new names of parameters in `mclust` objects)

### 16.8 Recursive Partitioning

- Page 138: the probability for glaucoma is `predict(trees[[i]], newdata = GlaucomaM)[,1]` and the code for converting average class probabilities in factors has to be reverted, too. Affects Figure 8.4. (which is now in sync with the interpretation).

- Page 139: small differences in `predtab`

- Page 140: small differences in table at bottom of this page

- Reference Hothorn et al. (2006b) updated (**R1**)

- Page 142, Ex. 8.1.: regression tree, not classification tree.

### 16.9 Survival Analysis

- The name of the test statistic in the output of `surv_test` has been changed to `chi-squared` (**R1**).

- Denominator $s$ was missing from $h(t)$ (page 147) (**R2**).

### 16.10 Analysing Longitudinal Data I

Page 168, Figure 10.2: `summary` does not provide degrees of freedom and p-values in newer versions of *lme4*.

### 16.11 Analysing Longitudinal Data II

–nothing known–

### 16.12 Meta-Analysis

- Page 202: $\mu_i \sim \mathcal{N}(\mu, \tau^2)$, not $N(\mu, \tau^2)$ (**R2**).
- Page 202: $W_i = 1/(V_i + \hat{\tau}^2)$ since $V_i$ is the within-study variance.
- Page 207: square for `selogs` was missing (**R2**).

### 16.13 Principal Component Analysis

–nothing known–

### 16.14 Multidimensional Scaling

In the formula for $b_{ij}$ on page 231 the last term in the parentheses should have a plus sign not a minus sign.

### 16.15 Cluster Analysis

- update to *mclust* version 3.0-0 (new plot method)
- Page 248: the likelihood needs $|\Sigma_j|^{-1/2}$
- Page 248: $W_j$ is a $q \times q$ matrix
- Page 248: $\Sigma_j = \Sigma, j = 1, \ldots, c.$
- Page 248:

$$l(\vartheta, \gamma) = -\frac{1}{2} \sum_{j=1}^{c} \text{trace}(\mathbf{W}_j \Sigma_j^{-1}) + n_j \log |\Sigma_j|$$

- Page 248: $\sum_{j=1}^{c} n_j \log |\mathbf{W}_j/n_j|$

### Thanks

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# Bibliography

Hothorn, T., Hornik, K., van de Wiel, M. A., and Zeileis, A. (2006a), "A Lego system for conditional inference," *The American Statistician*, 60, 257–263, URL http://statmath.wu-wien.ac.at/~zeileis/papers/Hothorn+Hornik+VanDeWiel-2006.pdf.

Hothorn, T., Hornik, K., and Zeileis, A. (2006b), "Unbiased recursive partitioning: A conditional inference framework," *Journal of Computational and Graphical Statistics*, 15, 651–674, URL http://statmath.wu-wien.ac.at/~zeileis/papers/Hothorn+Hornik+Zeileis-2006.pdf.