`Saemix`: Open Source R package for mixed effects modeling

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Saemix: R package for mixed effects modeling

test


Saemix

Chapter 1

Introduction

You can label chapter and section titles using `{#label}` after them, e.g., we can reference Chapter 1. If you do not manually label them, there will be automatic labels anyway, e.g., Chapter **??**.

Figures and tables with captions will be placed in `figure` and `table` environments, respectively.

```
par(mar = c(4, 4, .1, .1))
plot(pressure, type = 'b', pch = 19)
```

Reference a figure by its code chunk label with the `fig:` prefix, e.g., see Figure 1.1. Similarly, you can reference tables generated from `knitr::kable()`, e.g., see Table 1.1.

```
knitr::kable(
  head(iris, 20), caption = 'Here is a nice table!',
  booktabs = TRUE
)
```

You can write citations, too. For example, we are using the **bookdown** package (Xie, 2020) in this sample book, which was built on top of R Markdown and **knitr** (Xie, 2015).

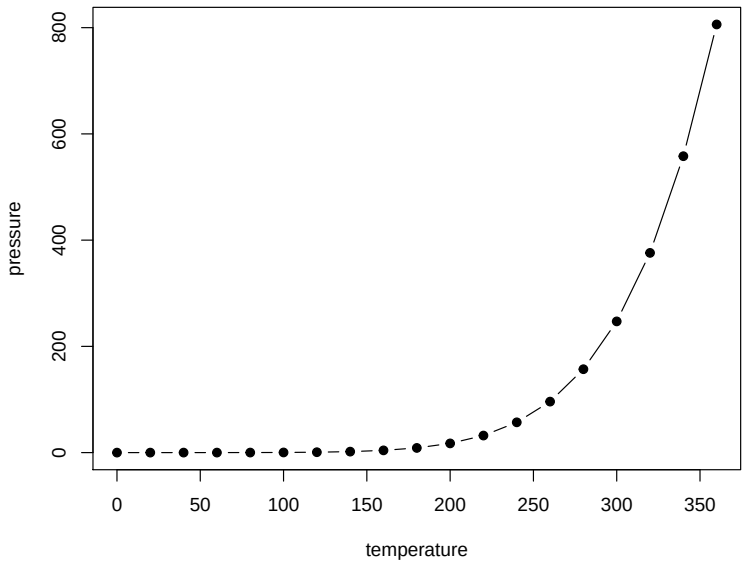

Figure 1.1: Here is a nice figure!

Table 1.1: Here is a nice table!

Sepal.Length	Sepal.Width	Petal.Length	Petal.Width	Species
5.1	3.5	1.4	0.2	setosa
4.9	3.0	1.4	0.2	setosa
4.7	3.2	1.3	0.2	setosa
4.6	3.1	1.5	0.2	setosa
5.0	3.6	1.4	0.2	setosa
5.4	3.9	1.7	0.4	setosa
4.6	3.4	1.4	0.3	setosa
5.0	3.4	1.5	0.2	setosa
4.4	2.9	1.4	0.2	setosa
4.9	3.1	1.5	0.1	setosa
5.4	3.7	1.5	0.2	setosa
4.8	3.4	1.6	0.2	setosa
4.8	3.0	1.4	0.1	setosa
4.3	3.0	1.1	0.1	setosa
5.8	4.0	1.2	0.2	setosa
5.7	4.4	1.5	0.4	setosa
5.4	3.9	1.3	0.4	setosa
5.1	3.5	1.4	0.3	setosa
5.7	3.8	1.7	0.3	setosa
5.1	3.8	1.5	0.3	setosa

Chapter 2

Installation

`saemix` can be installed and used on several platforms. Installation can range from easy to challenging, depending on the platform. We are in the process of streamlining this process, and any help or suggestions are greatly appreciated!

2.1 `saemix`

Information on how to install 'saemix' and its dependencies on different platforms can be found on the `saemix` pkgdown site. Separate information can be found on `RxODE` pkgdown site.

2.1.1 Installation via GitHub

To Complete

2.2 `shinyMixR`: project management tool

A user-friendly tool was developed for `saemix` based on `Shiny`

Chapter 3

User guide

3.1 Posters, Presentations and Publications

- PAGE 2016, City, Country: TestSlides

Various other publications can be found here.

Chapter 4

Case Studies

Some basic Case Studies are demonstrated in this chapter; the vignettes will be discussing the application in more depth.

4.1 `saemix`

```
library(saemix)
?saemix
```

4.1.1 Rationale

`saemix` estimation routines have their own way of specifying models.

Initial Values

`saemix` models are contained in a R function with two blocks:

```
Some R Code
```

4.1.2 Some examples

4.1.2.1 A two-compartment PK model

The model:

```
theomodel <- function() {
  ini({
    tka <- log(1.14)
```

```
    tcl <- log(0.0190)
    tv2  <- log(2.12)
    tv3  <- log(20.4)
    tq   <- log(0.383)
    wteff  <- 0.35
    sexeff <- -0.2
    eta.ka ~ 1
    eta.cl ~ 1
    eta.v2 ~ 1
    eta.v3 ~ 1
    eta.q ~ 1
    prop.err <- 0.075
  })
  model({
    ka <- exp(tka + eta.ka)
    cl <- exp(tcl + wteff*lWT + eta.cl)
    v2 <- exp(tv2 + sexeff*SEX + eta.v2)
    v3 <- exp(tv3 + eta.v3)
    q  <- exp(tq + eta.q)
    d/dt(depot) = -ka * depot
    d/dt(center) = ka * depot - cl / v2 * center + q/v3 * periph - q/v2 * center
    d/dt(periph) = q/v2 * center - q/v3 * periph
    cp = center / v2
    cp ~ prop(prop.err)
  })
}

fit <- saemix()
```

Contacts

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Bibliography

Xie, Y. (2015). *Dynamic Documents with R and knitr*. Chapman and Hall/CRC, Boca Raton, Florida, 2nd edition. ISBN 978-1498716963.

Xie, Y. (2020). *bookdown: Authoring Books and Technical Documents with R Markdown*. R package version 0.17.