

kableExtra 在 bookdown 项目中的使用

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第一章 表格

这是一个稍微复杂一点的经典表格样式，常出现在论文或期刊的数值模拟比较部分¹

```
library(kableExtra)
db <- mtcars[, 1:7]
db2 <- cbind(rownames(db), db)
colnames(db2) <- c("Methods", rep(c("Bias", "RMSE"), 3), "")
if (knitr::is_latex_output()) {
  kable(db2,
    format = "latex", booktabs = TRUE, escape = T, row.names = F,
    longtable = T, caption = " 第 1 种类型的统计表格样式",
    linesep = c("", "", "", "", "", "\\midrule")
  ) %>%
  kable_styling(
    latex_options = c("hold_position", "repeat_header"),
    full_width = F, position = "center", repeat_header_method = "replace",
    repeat_header_text = " 续表1.1"
  ) %>%
  add_header_above(c(" ",
    "$\\\\\\sigma^2$" = 2, "$\\\\\\phi$" = 2,
    "$\\\\\\tau^2$" = 2, "$r=\\\\\\delta/\\\\\\phi$" = 1
  ), escape = F) %>%
  footnote(
```

¹<https://arxiv.org/abs/1711.00437>

```

    general_title = " 注: ", title_format = "italic", threeparttable = T,
    general = "* 星号表示的内容可以很长"
  )
} else {
  kable(db2,
    format = "html", booktabs = TRUE, escape = T, row.names = F,
    caption = " 第 1 种类型的统计表格样式"
  ) %>%
  kable_styling(
    bootstrap_options = c("basic"),
    full_width = F, position = "center"
  ) %>%
  add_header_above(c("",
    "$\\sigma^2$" = 2, "$\\phi$" = 2,
    "$\\tau^2$" = 2, "$r=\\delta/\\phi$" = 1
  ), escape = F) %>%
  footnote(
    general_title = " 注: ", title_format = "italic", threeparttable = T,
    general = "* 星号表示的内容可以很长"
  )
}

```

表 1.1: 第 1 种类型的统计表格样式

| Methods | σ^2 | | ϕ | | τ^2 | | $r = \delta/\phi$ |
|-------------------|------------|------|--------|------|----------|-------|-------------------|
| | Bias | RMSE | Bias | RMSE | Bias | RMSE | |
| Mazda RX4 | 21.0 | 6 | 160.0 | 110 | 3.90 | 2.620 | 16.46 |
| Mazda RX4 Wag | 21.0 | 6 | 160.0 | 110 | 3.90 | 2.875 | 17.02 |
| Datsun 710 | 22.8 | 4 | 108.0 | 93 | 3.85 | 2.320 | 18.61 |
| Hornet 4 Drive | 21.4 | 6 | 258.0 | 110 | 3.08 | 3.215 | 19.44 |
| Hornet Sportabout | 18.7 | 8 | 360.0 | 175 | 3.15 | 3.440 | 17.02 |
| Valiant | 18.1 | 6 | 225.0 | 105 | 2.76 | 3.460 | 20.22 |

表 1.1: 续表1.1

| Methods | Bias | RMSE | Bias | RMSE | Bias | RMSE | |
|---------------------|------|------|-------|------|------|-------|-------|
| Duster 360 | 14.3 | 8 | 360.0 | 245 | 3.21 | 3.570 | 15.84 |
| Merc 240D | 24.4 | 4 | 146.7 | 62 | 3.69 | 3.190 | 20.00 |
| Merc 230 | 22.8 | 4 | 140.8 | 95 | 3.92 | 3.150 | 22.90 |
| Merc 280 | 19.2 | 6 | 167.6 | 123 | 3.92 | 3.440 | 18.30 |
| Merc 280C | 17.8 | 6 | 167.6 | 123 | 3.92 | 3.440 | 18.90 |
| Merc 450SE | 16.4 | 8 | 275.8 | 180 | 3.07 | 4.070 | 17.40 |
| Merc 450SL | 17.3 | 8 | 275.8 | 180 | 3.07 | 3.730 | 17.60 |
| Merc 450SLC | 15.2 | 8 | 275.8 | 180 | 3.07 | 3.780 | 18.00 |
| Cadillac Fleetwood | 10.4 | 8 | 472.0 | 205 | 2.93 | 5.250 | 17.98 |
| Lincoln Continental | 10.4 | 8 | 460.0 | 215 | 3.00 | 5.424 | 17.82 |
| Chrysler Imperial | 14.7 | 8 | 440.0 | 230 | 3.23 | 5.345 | 17.42 |
| Fiat 128 | 32.4 | 4 | 78.7 | 66 | 4.08 | 2.200 | 19.47 |
| Honda Civic | 30.4 | 4 | 75.7 | 52 | 4.93 | 1.615 | 18.52 |
| Toyota Corolla | 33.9 | 4 | 71.1 | 65 | 4.22 | 1.835 | 19.90 |
| Toyota Corona | 21.5 | 4 | 120.1 | 97 | 3.70 | 2.465 | 20.01 |
| Dodge Challenger | 15.5 | 8 | 318.0 | 150 | 2.76 | 3.520 | 16.87 |
| AMC Javelin | 15.2 | 8 | 304.0 | 150 | 3.15 | 3.435 | 17.30 |
| Camaro Z28 | 13.3 | 8 | 350.0 | 245 | 3.73 | 3.840 | 15.41 |
| Pontiac Firebird | 19.2 | 8 | 400.0 | 175 | 3.08 | 3.845 | 17.05 |
| Fiat X1-9 | 27.3 | 4 | 79.0 | 66 | 4.08 | 1.935 | 18.90 |
| Porsche 914-2 | 26.0 | 4 | 120.3 | 91 | 4.43 | 2.140 | 16.70 |
| Lotus Europa | 30.4 | 4 | 95.1 | 113 | 3.77 | 1.513 | 16.90 |
| Ford Pantera L | 15.8 | 8 | 351.0 | 264 | 4.22 | 3.170 | 14.50 |
| Ferrari Dino | 19.7 | 6 | 145.0 | 175 | 3.62 | 2.770 | 15.50 |
| Maserati Bora | 15.0 | 8 | 301.0 | 335 | 3.54 | 3.570 | 14.60 |
| Volvo 142E | 21.4 | 4 | 121.0 | 109 | 4.11 | 2.780 | 18.60 |

注：

* 星号表示的内容可以很长

- `striped` 默认使用浅灰色, `stripe_color` 可以用来指定颜色 `stripe_color="white"`, 它只在 LaTeX 下工作, HTML 下更改颜色需要设置 CSS, 可以不使用 `striped` 改变默认的白底设置
- `threeparttable = TRUE` 处理超长的注解标记,
- `add_header_above` 函数内的 `escape = F` 用来处理数学公式,
- `longtable = T` 表格很长时需要分页, 因此使用续表,
- `hold_position` 使用了 `[!h]` 控制浮动
- 对于数学符号前要四个反斜杠这一点, 作者今后可能会改变, 只需要两个反斜杠, 与 HTML 格式表格保持一致 <https://github.com/haozhu233/kableExtra/issues/120>
- 对某些数据用不同颜色高亮 Selecting and colouring single table cells with **kableExtra** in R markdown `cell_spec` <https://stackoverflow.com/questions/50118394>

1.1 Pandoc 支持的表格

其实 Pandoc's Markdown 本身也支持不少表格样式², 比如常见的简单表格样式, 如表 1.2 和表 1.3

表 1.2: 简单表格语法展示

| Right | Left | Center | Default |
|-------|------|--------|---------|
| 12 | 12 | 12 | 12 |
| 123 | 123 | 123 | 123 |
| 1 | 1 | 1 | 1 |

再来一个表格

²<https://pandoc.org/MANUAL.html#tables>

表 1.3: 表格标题可以含有脚注³

| First Header | Second Header |
|--------------|---------------|
| Content Cell | Content Cell |
| Content Cell | Content Cell |

1.2 软件信息

```
sessionInfo(.packages(T))
```

```
## R version 3.6.1 (2017-01-27)
## Platform: x86_64-pc-linux-gnu (64-bit)
## Running under: Ubuntu 16.04.6 LTS
##
## Matrix products: default
## BLAS: /home/travis/R-bin/lib/R/lib/libRblas.so
## LAPACK: /home/travis/R-bin/lib/R/lib/libRlapack.so
##
## locale:
##  [1] LC_CTYPE=en_US.UTF-8      LC_NUMERIC=C
##  [3] LC_TIME=en_US.UTF-8      LC_COLLATE=en_US.UTF-8
##  [5] LC_MONETARY=en_US.UTF-8  LC_MESSAGES=en_US.UTF-8
##  [7] LC_PAPER=en_US.UTF-8     LC_NAME=C
##  [9] LC_ADDRESS=C             LC_TELEPHONE=C
## [11] LC_MEASUREMENT=en_US.UTF-8 LC_IDENTIFICATION=C
##
## attached base packages:
##  [1] base      compiler datasets graphics grDevices grid      methods
##  [8] parallel splines  stats     stats4    tcltk     tools    utils
```

³附有一个简短的脚注

##

other attached packages:

| | | | |
|----------------------------|--------------------|-------------------|------------------|
| ## [1] askpass_1.1 | assertthat_0.2.1 | backports_1.1.5 | base64enc_0.1-3 |
| ## [5] BH_1.69.0-1 | bookdown_0.16 | callr_3.3.2 | cli_1.1.0 |
| ## [9] clipr_0.7.0 | colorspace_1.4-1 | crayon_1.3.4 | curl_4.2 |
| ## [13] digest_0.6.23 | dplyr_0.8.3 | ellipsis_0.3.0 | evaluate_0.14 |
| ## [17] fansi_0.4.0 | farver_2.0.1 | glue_1.3.1 | highr_0.8 |
| ## [21] hms_0.5.2 | htmltools_0.4.0 | httr_1.4.1 | jsonlite_1.6 |
| ## [25] kableExtra_1.1.0 | knitr_1.26 | labeling_0.3 | lifecycle_0.1.0 |
| ## [29] magrittr_1.5 | markdown_1.1 | mime_0.7 | munSELL_0.5.0 |
| ## [33] openssl_1.4.1 | pillar_1.4.2 | pkgconfig_2.0.3 | plogr_0.2.0 |
| ## [37] processx_3.4.1 | ps_1.3.0 | purrr_0.3.3 | R6_2.4.1 |
| ## [41] RColorBrewer_1.1-2 | Rcpp_1.0.3 | readr_1.3.1 | remotes_2.1.0 |
| ## [45] rlang_0.4.2 | rmarkdown_1.17 | rstudioapi_0.10 | rvest_0.3.5 |
| ## [49] scales_1.1.0 | selectr_0.4-2 | stringi_1.4.3 | stringr_1.4.0 |
| ## [53] sys_3.3 | tibble_2.1.3 | tidyselect_0.2.5 | tinytex_0.17 |
| ## [57] utf8_1.1.4 | vctrs_0.2.0 | viridisLite_0.3.0 | webshot_0.5.2 |
| ## [61] xfun_0.11 | xml2_1.2.2 | yaml_2.2.0 | zeallot_0.1.0 |
| ## [65] boot_1.3-22 | class_7.3-15 | cluster_2.1.0 | codetools_0.2-16 |
| ## [69] foreign_0.8-71 | KernSmooth_2.23-15 | lattice_0.20-38 | MASS_7.3-51.4 |
| ## [73] Matrix_1.2-17 | mgcv_1.8-28 | nlme_3.1-140 | nnet_7.3-12 |
| ## [77] rpart_4.1-15 | spatial_7.3-11 | survival_2.44-1.1 | |