pmt

Contents

1 Introduction

You can label chapter and section titles using `{#label}` after them, e.g., we can reference Chapter @ref(intro). If you do not manually label them, there will be automatic labels anyway, e.g., Chapter @ref(methods).

```
library(tidyverse)
library(pmtables)

stdata() %>% stable() %>% st_asis()
```

STUDY	DOSE	FORM	N	WT	CRCL	AGE	ALB	SCR
12-DEMO-001	100 mg	tablet	80	71.4	104	33.7	4.20	1.06
12-DEMO-001	150 mg	capsule	16	89.4	122	24.4	4.63	1.12
12-DEMO-001	150 mg	tablet	48	81.7	104	34.4	3.83	0.910
12-DEMO-001	150 mg	troche	16	94.0	93.2	27.4	4.94	1.25
12-DEMO-001	200 mg	tablet	64	67.9	100	27.5	4.25	1.10
12-DEMO-001	200 mg	troche	16	76.6	99.2	22.8	4.54	1.15
12-DEMO-002	100 mg	capsule	36	61.3	113	38.3	4.04	1.28
12-DEMO-002	100 mg	tablet	324	77.6	106	29.9	4.31	0.981
12-DEMO-002	50 mg	capsule	36	74.1	112	37.1	4.44	0.900
12-DEMO-002	50 mg	tablet	324	71.2	106	34.1	4.63	0.868
12-DEMO-002	75 mg	capsule	36	72.4	105	38.2	3.89	0.900
12-DEMO-002	75 mg	tablet	288	71.6	98.9	34.2	4.49	0.991
12-DEMO-002	75 mg	troche	36	73.6	103	49.2	4.52	0.930

```
stdata() %>% stable(cols_bold = TRUE) %>% st_asis()
```

STUDY	DOSE	FORM	N	WT	CRCL	AGE	ALB	SCR
12-DEMO-001	100 mg	tablet	80	71.4	104	33.7	4.20	1.06
12-DEMO-001	150 mg	capsule	16	89.4	122	24.4	4.63	1.12
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2 A simple table: stable

`stable()` is the name of the workhorse function that is used to turn data.frames into TeX tables. This chapter will introduce the `stable()` function and how to us it to create basic tables.

To illustrate usage and features of `stable()`, we will use the `stdata` data set that comes with pmtables

```
data <- stdata()

head(data)
```

```
. # A tibble: 6 x 9
.   STUDY       DOSE   FORM    N     WT    CRCL  AGE   ALB   SCR
.   <chr>       <chr>  <chr>   <chr> <chr> <chr> <chr> <chr> <chr>
. 1 12-DEMO-001 100 mg tablet  80    71.4  104   33.7  4.20  1.06
. 2 12-DEMO-001 150 mg capsule 16    89.4  122   24.4  4.63  1.12
. 3 12-DEMO-001 150 mg tablet  48    81.7  104   34.4  3.83  0.910
. 4 12-DEMO-001 150 mg troche  16    94.0  93.2  27.4  4.94  1.25
. 5 12-DEMO-001 200 mg tablet  64    67.9  100   27.5  4.25  1.10
. 6 12-DEMO-001 200 mg troche  16    76.6  99.2  22.8  4.54  1.15
```

We can turn this data frame into a TeX table by passing it into `stable()`.

```
out <- stable(data)

head(out, n = 10)
```

```
.  [1] "\\setlength{\\tabcolsep}{5pt} "
.  [2] "\\begin{threeparttable}"
.  [3] "\\renewcommand{\\arraystretch}{1.3}"
.  [4] "\\begin{tabular}[h]{lllllllll}"
.  [5] "\\hline"
.  [6] "STUDY & DOSE & FORM & N & WT & CRCL & AGE & ALB & SCR \\\\"
.  [7] "\\hline"
.  [8] "12-DEMO-001 & 100 mg & tablet & 80 & 71.4 & 104 & 33.7 & 4.20 & 1.06 \\\\"
.  [9] "12-DEMO-001 & 150 mg & capsule & 16 & 89.4 & 122 & 24.4 & 4.63 & 1.12 \\\\"
. [10] "12-DEMO-001 & 150 mg & tablet & 48 & 81.7 & 104 & 34.4 & 3.83 & 0.910 \\\\"
```

Note that we have shown the raw latex code that is generated by `stable()`. That is to say: the output from `stable()` is a character vector of latex code for the table. Note also that this character vector has a special class associated with it: `stable`. That means we can write functions that recognize this character vector as output from `stable()` and we can have those functions process the character vector in special ways.

We can render that table in TeX **in the current Rmarkdown document** by passing the text to `st_asis()`.

```
out %>% st_asis()
```

STUDY	DOSE	FORM	N	WT	CRCL	AGE	ALB	SCR
12-DEMO-001	100 mg	tablet	80	71.4	104	33.7	4.20	1.06
12-DEMO-001	150 mg	capsule	16	89.4	122	24.4	4.63	1.12
12-DEMO-001	150 mg	tablet	48	81.7	104	34.4	3.83	0.910
12-DEMO-001	150 mg	troche	16	94.0	93.2	27.4	4.94	1.25
12-DEMO-001	200 mg	tablet	64	67.9	100	27.5	4.25	1.10
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Remember to only call `st_asis()` when you are rendering tables inline in an Rmd document. If you are sending table code to a TeX report, then you will save them to a file and then include them into your report.

The remaining sections of this chapter will show you how to modify and enhance this output in the more basic ways. We will implement separate chapters for more complicated table manipulations.

2.1 Annotate with file names

pmtables can track and annotate your table with the filenames of the R code that generated the table (`r_file`) as well as the output file where you write the the table `.tex` code (`output_file`).

To have pmtables annotate your table with these file names, pass them in with the `r_file` and `output_file` arguments

```
out <- stable(data, r_file = "tables.R", output_file = "tables.tex")
```

When we look at the rendered table, these names will show up as annotations at the bottom of the table

```
out %>% st_asis()
```

STUDY	DOSE	FORM	N	WT	CRCL	AGE	ALB	SCR
12-DEMO-001	100 mg	tablet	80	71.4	104	33.7	4.20	1.06
12-DEMO-001	150 mg	capsule	16	89.4	122	24.4	4.63	1.12
12-DEMO-001	150 mg	tablet	48	81.7	104	34.4	3.83	0.910
12-DEMO-001	150 mg	troche	16	94.0	93.2	27.4	4.94	1.25
12-DEMO-001	200 mg	tablet	64	67.9	100	27.5	4.25	1.10
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Source code: tables.R
Source file: tables.tex

2.2 Saving your stable

Saving your stable **can** be as easy as sending it into `writeLines()`

```
writeLines(out, con = tempfile(tmpdir = '.', fileext = ".tex"))
```

But remember that we passed in the `output_file` argument to `stable()` and we can use that data to save the table code to the file we named in that argument.

Note that our `stable` object has another attribute now called `stable_file`

```
attributes(out)
```

```
. $class
. [1] "stable"
.
. $stable_file
. [1] "tables.tex"
```

This has the value that we passed in as `output_file`. To save our table to `stable_file`, we call `stable_save()`

```
stable_save(out)
```

There is a `dir` argument to `stable_save()` that we can use to to select the directory where the file will be saved

```
stable_save(out, dir = tempdir())
```

And if you look at the default value for `dir` in `?stable_save`, you'll see that this is associated with an option called `pmtables.dir`; you can set that option to your default output directory and your tables will be saved there untill you change that

```
options(pmtables.dir = tempdir())

stable_save(out)
```

3 Group table rows with panel

Paneling your table is a way to group sets of rows together into a "panel" with a panel header in bold. For example, we can panel a table of `mtcars` by `carb`. We will be working with an abbreviated version of `mtcars`:

```
smcars
```

```
.              name  mpg cyl  disp  hp drat    wt  qsec vs am gear carb
. 1      Datsun 710 22.8   4 108.0  93 3.85 2.320 18.61  1  1    4    1
. 2  Hornet 4 Drive 21.4   6 258.0 110 3.08 3.215 19.44  1  0    3    1
. 3          Valiant 18.1   6 225.0 105 2.76 3.460 20.22  1  0    3    1
. 4         Fiat 128 32.4   4  78.7  66 4.08 2.200 19.47  1  1    4    1
. 5  Toyota Corolla 33.9   4  71.1  65 4.22 1.835 19.90  1  1    4    1
. 6   Toyota Corona 21.5   4 120.1  97 3.70 2.465 20.01  1  0    3    1
. 7        Fiat X1-9 27.3   4  79.0  66 4.08 1.935 18.90  1  1    4    1
. 8       Merc 240D 24.4   4 146.7  62 3.69 3.190 20.00  1  0    4    2
. 9        Merc 230 22.8   4 140.8  95 3.92 3.150 22.90  1  0    4    2
. 10    Honda Civic 30.4   4  75.7  52 4.93 1.615 18.52  1  1    4    2
```

Then we pass into `stable()` and name the paneling column:

```
smcars %>% stable(panel = "carb") %>% st_asis()
```

name	mpg	cyl	disp	hp	drat	wt	qsec	vs	am	gear
1										
Datsun 710	22.8	4	108	93	3.85	2.32	18.61	1	1	4
Hornet 4 Drive	21.4	6	258	110	3.08	3.215	19.44	1	0	3
Valiant	18.1	6	225	105	2.76	3.46	20.22	1	0	3
Fiat 128	32.4	4	78.7	66	4.08	2.2	19.47	1	1	4
Toyota Corolla	33.9	4	71.1	65	4.22	1.835	19.9	1	1	4
Toyota Corona	21.5	4	120.1	97	3.7	2.465	20.01	1	0	3
Fiat X1-9	27.3	4	79	66	4.08	1.935	18.9	1	1	4
2										
Merc 240D	24.4	4	146.7	62	3.69	3.19	20	1	0	4
Merc 230	22.8	4	140.8	95	3.92	3.15	22.9	1	0	4
Honda Civic	30.4	4	75.7	52	4.93	1.615	18.52	1	1	4

3.1 panel: important points

1. Most of the time, the data frame should be sorted by the `panel` column
2.

4 Group table columns with spanners

5 Tables that span multiple pages: longtable

6 The pipe interface