

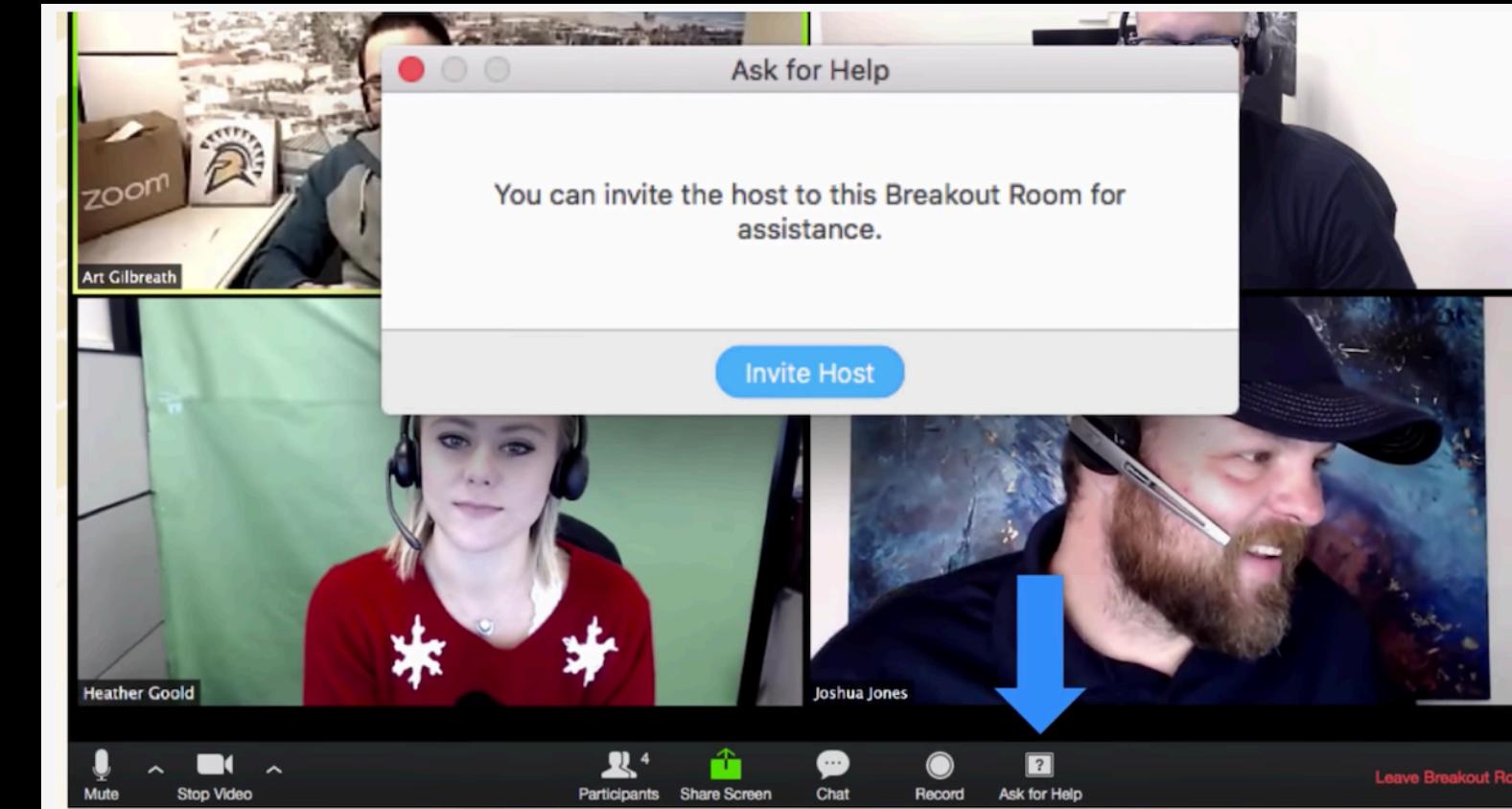
New Developments in Tables in R

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Exercise: Tables

Type into the chat window:

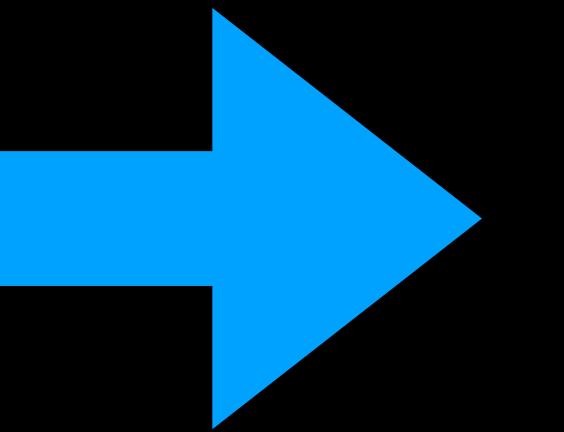
1. What specific needs do you have for tables?
2. Are your needs met completely by what you have already learned (e.g. kable)



```

> mpg
# A tibble: 234 x 11
  manufacturer model      displ  year   cyl trans  drv   cty   hwy fl
  <chr>        <chr>     <dbl> <int> <int> <chr> <chr> <int> <int> <chr>
1 audi         a4          1.8  1999     4 auto(l5) f      18    29 p 
2 audi         a4          1.8  1999     4 manual(m5)f   21    29 p 
3 audi         a4          2.0  2008     4 manual(m6)f   20    31 p 
4 audi         a4          2.0  2008     4 auto(av) f     21    30 p 
5 audi         a4          2.8  1999     6 auto(l5) f     16    26 p 
6 audi         a4          2.8  1999     6 manual(m5)f  18    26 p 
7 audi         a4          3.1  2008     6 auto(av) f    18    27 p 
8 audi         a4 quattro  1.8  1999     4 manual(m5)4   18    26 p 
9 audi         a4 quattro  1.8  1999     4 auto(l5)4    16    25 p 
10 audi        a4 quattro 2.0  2008     4 manual(m6)4   20    28 p 
# ... with 224 more rows

```



manufacturer	model	displ	year	cyl	tr
audi	a4	1.8	1999	4	a
audi	a4	1.8	1999	4	m
audi	a4	2.0	2008	4	m
audi	a4	2.0	2008	4	a
audi	a4	2.8	1999	6	a
audi	a4	2.8	1999	6	m
audi	a4	3.1	2008	6	a
audi	a4 quattro	1.8	1999	4	m
audi	a4 quattro	1.8	1999	4	a
audi	a4 quattro	2.0	2008	4	m

Hover

Our most complex table

manufacturer	model	displ	year	cyl	trans	drv	cty	hwy	fl	class
audi	a4	1.8	1999	4	auto(l5)	f	18	29	p	compact
audi	a4	1.8	1999	4	manual(m5)	f	21	29	p	compact
audi	a4	2.0	2008	4	manual(m6)	f	20	31	p	compact
audi	a4	2.0	2008	4	auto(av)	f	21	30	p	compact
audi	a4	2.8	1999	6	auto(l5)	f	16	26	p	compact
audi	a4	2.8	1999	6	manual(m5)	f	18	26	p	compact

Structural Limitations

"Tidy" data: 1 row = 1 row

3 Non-Tidy Tables

Table 2. Subject Demographics
Safety Analysis Set

	[GS-xxxx 20 mg SD] - [GS-xxxx 20 mg QD] (N=8)	[GS-xxxx 60 mg SD] - [GS-xxxx 60 mg QD] (N=8)	Placebo (N=4)	Overall (N=20)
Age (years)				
N	8	8	4	20
Mean (SD)	25 (3.9)	29 (8.5)	23 (3.2)	26 (6.4)
Median	24	28	24	26
Q1, Q3	22, 28	22, 37	21, 26	22, 29
Min, Max	20, 31	19, 41	20, 26	19, 42
Sex at Birth				
Male	7 (87.5%)	7 (87.5%)	1 (25.0%)	15 (75.0%)
Female	1 (12.5%)	1 (12.5%)	3 (75.0%)	5 (25.0%)
Race				
Asian	2 (25.0%)	2 (25.0%)	1 (25.0%)	5 (25.0%)
Black	0	1 (12.5%)	0	1 (5.0%)
White	4 (50.0%)	3 (37.5%)	3 (75.0%)	10 (50.0%)
Other	2 (25.0%)	2 (25.0%)	0	4 (20.0%)
Ethnicity				
Not Hispanic or Latino	8 (100.0%)	7 (87.5%)	4 (100.0%)	19 (95.0%)
Hispanic or Latino	0	1 (12.5%)	0	1 (5.0%)

Look familiar?

Not "tidy"

Table 3. Treatment-Emergent Adverse Events
Safety Analysis Set

Item Organ Class Preferred Term	Single Doses			
	GS-xxxx 20 mg SD (N=8)	GS-xxxx 60 mg SD (N=8)	Placebo SD (N=4)	Overall SD (N=20)
Number (%) of Subjects with Treatment-Emergent Adverse Event	4 (50.0%)	1 (12.5%)	2 (50.0%)	7 (35.0%)
Gastrointestinal disorders	0	0	2 (50.0%)	2 (10.0%)
Abdominal pain	0	0	1 (25.0%)	1 (5.0%)
Constipation	0	0	1 (25.0%)	1 (5.0%)
Dry mouth	0		1 (5.0%)	1 (5.0%)
Dysphagia	0		1 (5.0%)	1 (5.0%)
Local disorders and administration site reactions	1 (12.5%)		0.0%)	3 (15.0%)
Catheter site pain	1 (12.5%)	0	0	1 (5.0%)
Tiredness	0	0	1 (25.0%)	1 (5.0%)
Peripheral swelling	0	0	1 (25.0%)	1 (5.0%)
Infections and infestations	1 (12.5%)	0	1 (25.0%)	2 (10.0%)
Respiratory tract infection	1 (12.5%)	0	1 (25.0%)	2 (10.0%)
General			0	1 (5.0%)
Poisoning and	1 (12.5%)	0	0	1 (5.0%)

Multi-column text

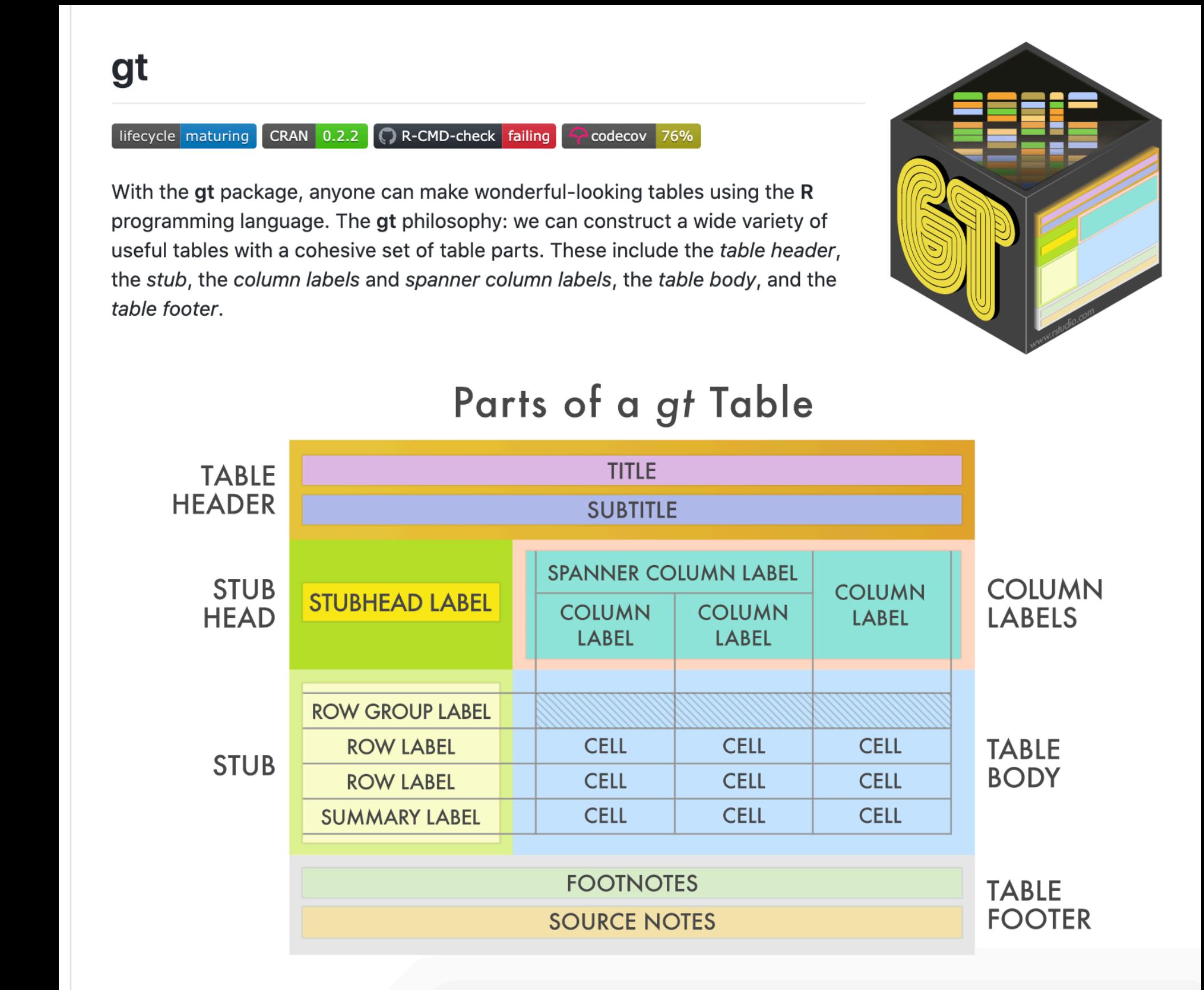


Table 1. Subject Disposition
Safety Analysis Set

	[GS-xxxx 20 mg SD] - [GS-xxxx 20 mg QD] (N=8)	[GS-xxxx 60 mg SD] - [GS-xxxx 60 mg QD] (N=8)	Placebo (N=4)	Overall (N=20)
All Randomized Analysis Set	8	8	4	20
Safety Analysis Set	8	8	4	20
Study Drug Completion Status				
Completed Study Drug	7 (87.5%)	8 (100.0%)	4 (100.0%)	19 (95.0%)
Prematurely Discontinued Study Drug	1 (12.5%)	0	0	1 (5.0%)
Reason for Premature Discontinuation of Study Drug				
Adverse Event	1 (12.5%)	0	0	1 (5.0%)
Study Completion Status				
Completed Study	8 (100.0%)	8 (100.0%)	4 (100.0%)	20 (100.0%)
Prematurely Discontinued Study	0	0	0	0

The gt package

- The Grammar of Tables - v0.2.2
- First published in March of 2020. Funded by RStudio
- Output is HTML
 - Future: LaTeX and RTF
- Works with the pipe `%>%`
- Please install now: `install.packages("gt")`



gt basics

```
> mpg
```

A tibble: 10 × 11

	manufacturer	model	displ	year	cyl	trans	drv	cty	hwy	fl	class
	<chr>	<chr>	<dbl>	<int>	<int>	<chr>	<chr>	<int>	<int>	<chr>	<chr>
1	audi	a4	1.8	1999	4	auto(l5)	f	18	29	p	compa...
2	audi	a4 quattro	1.8	1999	4	manual(...)	4	18	26	p	compa...
3	audi	a6 quattro	2.8	1999	6	auto(l5)	4	15	24	p	midsi...
4	chevrolet	c1500 suburba...	5.3	2008	8	auto(l4)	r	14	20	r	suv
5	chevrolet	corvette	5.7	1999	8	manual(...)	r	16	26	p	2seat...
6	chevrolet	k1500 tahoe 4...	5.3	2008	8	auto(l4)	4	14	19	r	suv
7	chevrolet	malibu	2.4	1999	4	auto(l4)	f	19	27	r	midsi...
8	dodge	caravan 2wd	2.4	1999	4	auto(l3)	f	18	24	r	miniv...
9	dodge	dakota pickup...	3.7	2008	6	manual(...)	4	15	19	r	pickup
10	dodge	durango 4wd	3.9	1999	6	auto(l4)	4	13	17	r	suv

mpg

modern-tables.Rmd

gt()

mpg %>%
gt()

The screenshot shows a Jupyter Notebook interface with a toolbar at the top. The toolbar includes buttons for Files, Plots, Connections, Packages, Help, and Viewer, along with icons for zoom, export, and publish.

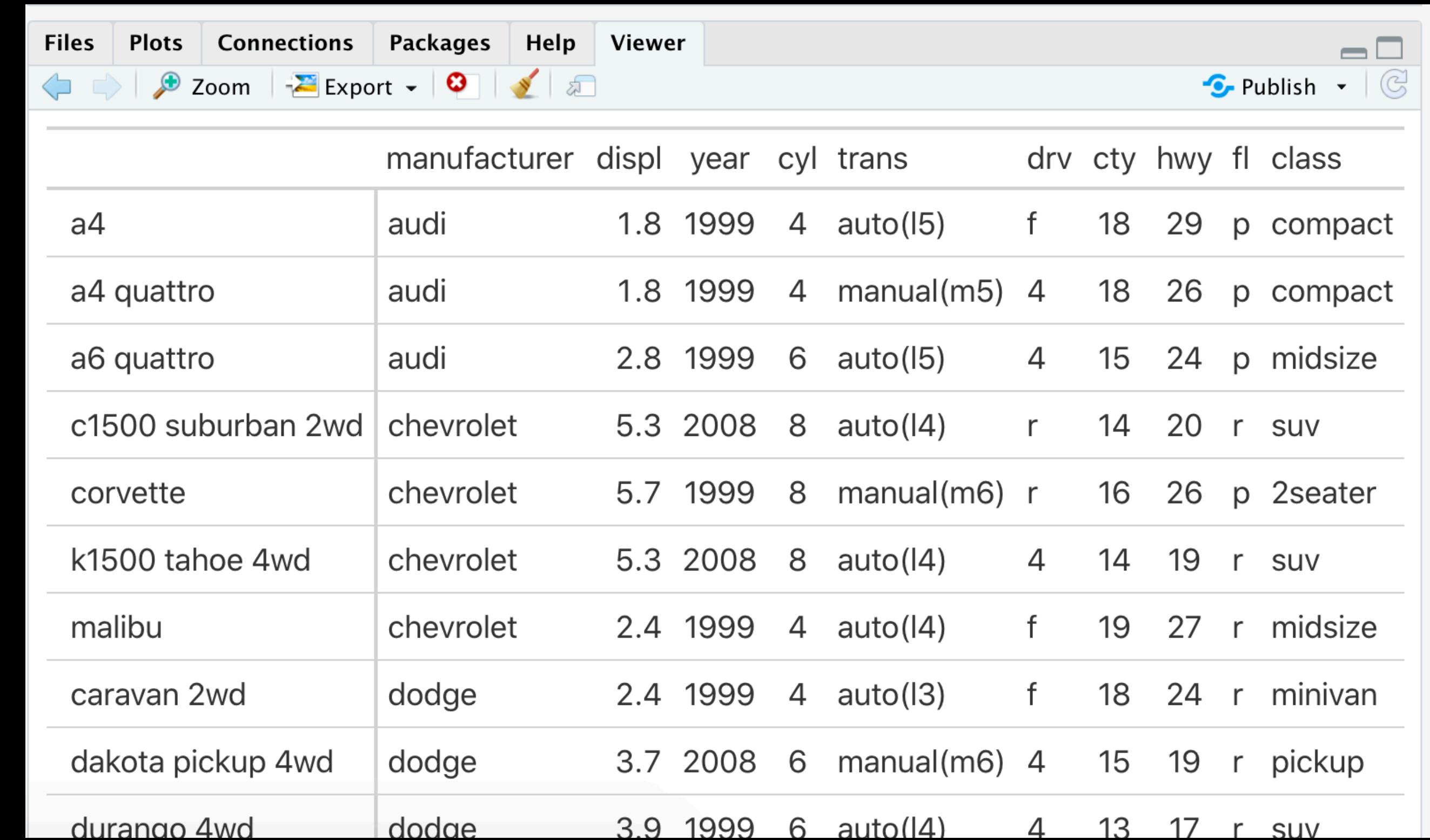
The main area displays a table output from the `gt()` function. The table has the following columns:

manufacturer	model	displ	year	cyl	trans	drv	cty	hwy
audi	a4	1.8	1999	4	auto(l5)	f	18	29
audi	a4 quattro	1.8	1999	4	manual(m5)	4	18	26
audi	a6 quattro	2.8	1999	6	auto(l5)	4	15	24
chevrolet	c1500 suburban 2wd	5.3	2008	8	auto(l4)	r	14	20
chevrolet	corvette	5.7	1999	8	manual(m6)	r	16	26
chevrolet	k1500 tahoe 4wd	5.3	2008	8	auto(l4)	4	14	19

gt(rowname_col = "model")

mpg %>%

 gt(rowname_col = "model")



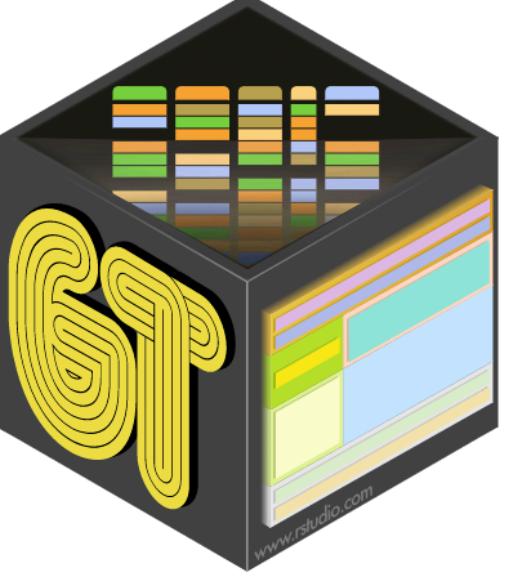
The screenshot shows a software interface with a toolbar at the top containing various icons for file operations, plots, connections, packages, help, and a viewer. Below the toolbar is a table viewer window displaying the 'mpg' dataset from the 'ggplot2' package. The table has 10 rows and 12 columns. The columns are labeled: manufacturer, displ, year, cyl, trans, drv, cty, hwy, fl, class. The rows represent different car models, each with its manufacturer name in the first column. The data includes various car models like audi, chevrolet, dodge, and dodae, along with their respective details such as engine displacement (displ), year of manufacture (year), number of cylinders (cyl), transmission type (trans), drive type (drv), city fuel economy (cty), highway fuel economy (hwy), fuel type (fl), and vehicle class (class).

	manufacturer	displ	year	cyl	trans	drv	cty	hwy	fl	class
a4	audi	1.8	1999	4	auto(l5)	f	18	29	p	compact
a4 quattro	audi	1.8	1999	4	manual(m5)	4	18	26	p	compact
a6 quattro	audi	2.8	1999	6	auto(l5)	4	15	24	p	midsize
c1500 suburban 2wd	chevrolet	5.3	2008	8	auto(l4)	r	14	20	r	suv
corvette	chevrolet	5.7	1999	8	manual(m6)	r	16	26	p	2seater
k1500 tahoe 4wd	chevrolet	5.3	2008	8	auto(l4)	4	14	19	r	suv
malibu	chevrolet	2.4	1999	4	auto(l4)	f	19	27	r	midsize
caravan 2wd	dodge	2.4	1999	4	auto(l3)	f	18	24	r	minivan
dakota pickup 4wd	dodge	3.7	2008	6	manual(m6)	4	15	19	r	pickup
durango 4wd	dodae	3.9	1999	6	auto(l4)	4	13	17	r	suv

gt

lifecycle maturing CRAN 0.2.2 R-CMD-check failing codecov 76%

With the **gt** package, anyone can make wonderful-looking tables using the R programming language. The **gt** philosophy: we can construct a wide variety of useful tables with a cohesive set of table parts. These include the *table header*, the *stub*, the *column labels* and *spanner column labels*, the *table body*, and the *table footer*.



Parts of a *gt* Table

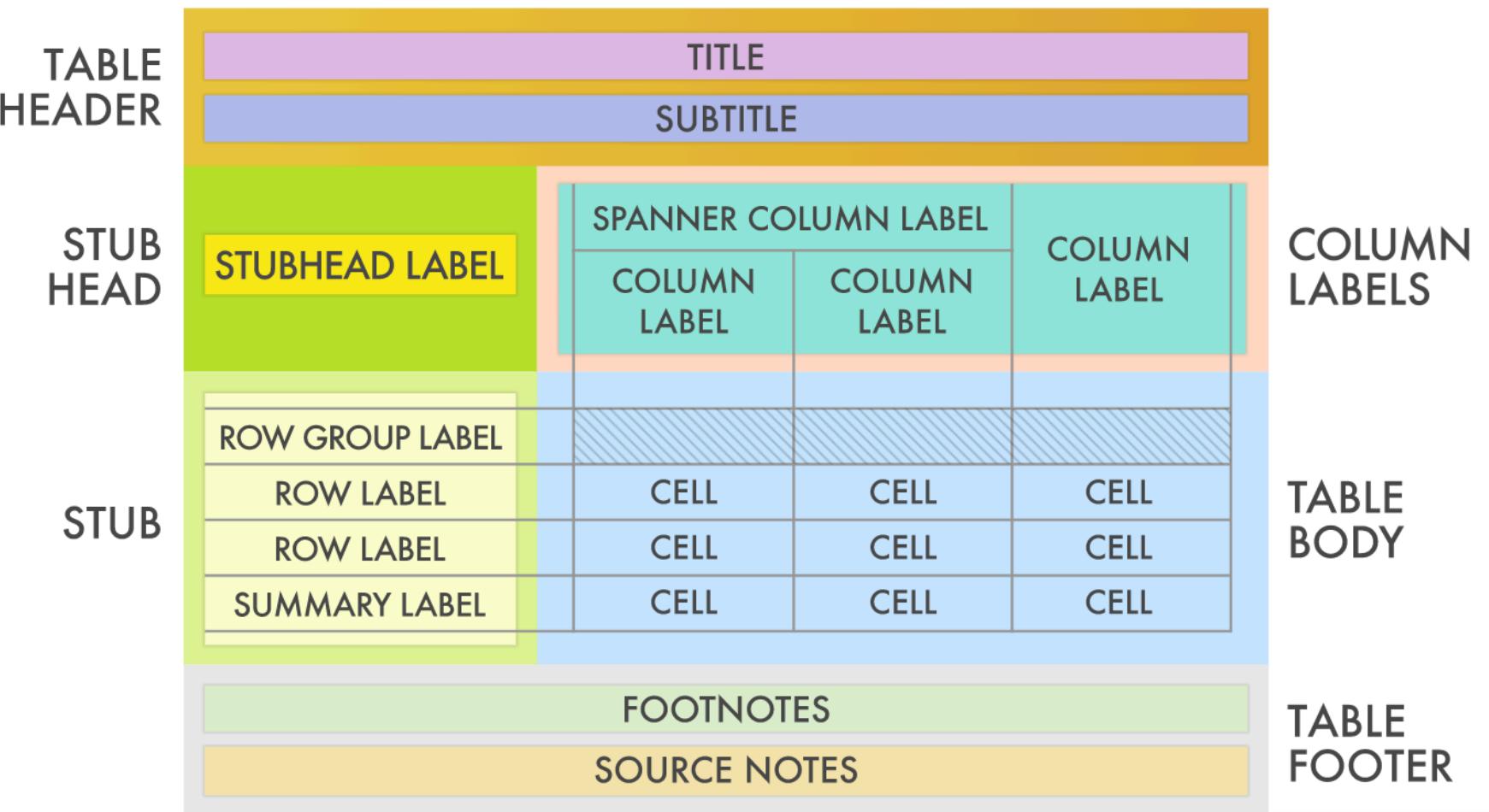


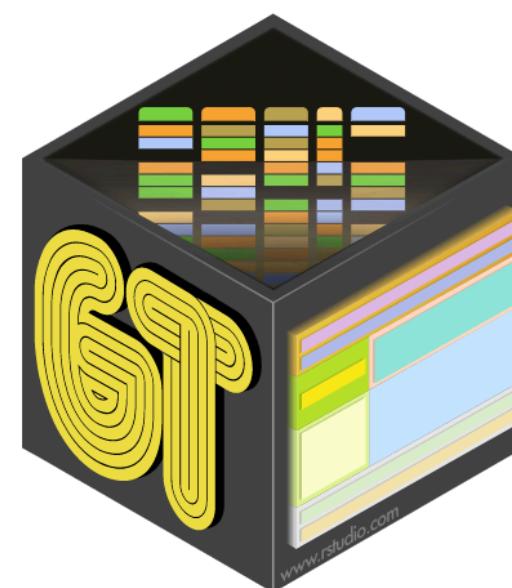
TABLE HEADER			
STUB HEAD			
STUB			
COLUMN LABELS			
TABLE BODY			
TABLE FOOTER			
TITLE			
SUBTITLE			
STUBHEAD LABEL	SPANNER COLUMN LABEL	COLUMN LABEL	COLUMN LABEL
ROW GROUP LABEL			
ROW LABEL	CELL	CELL	CELL
ROW LABEL	CELL	CELL	CELL
SUMMARY LABEL	CELL	CELL	CELL
FOOTNOTES			
SOURCE NOTES			

Anatomy of a Table

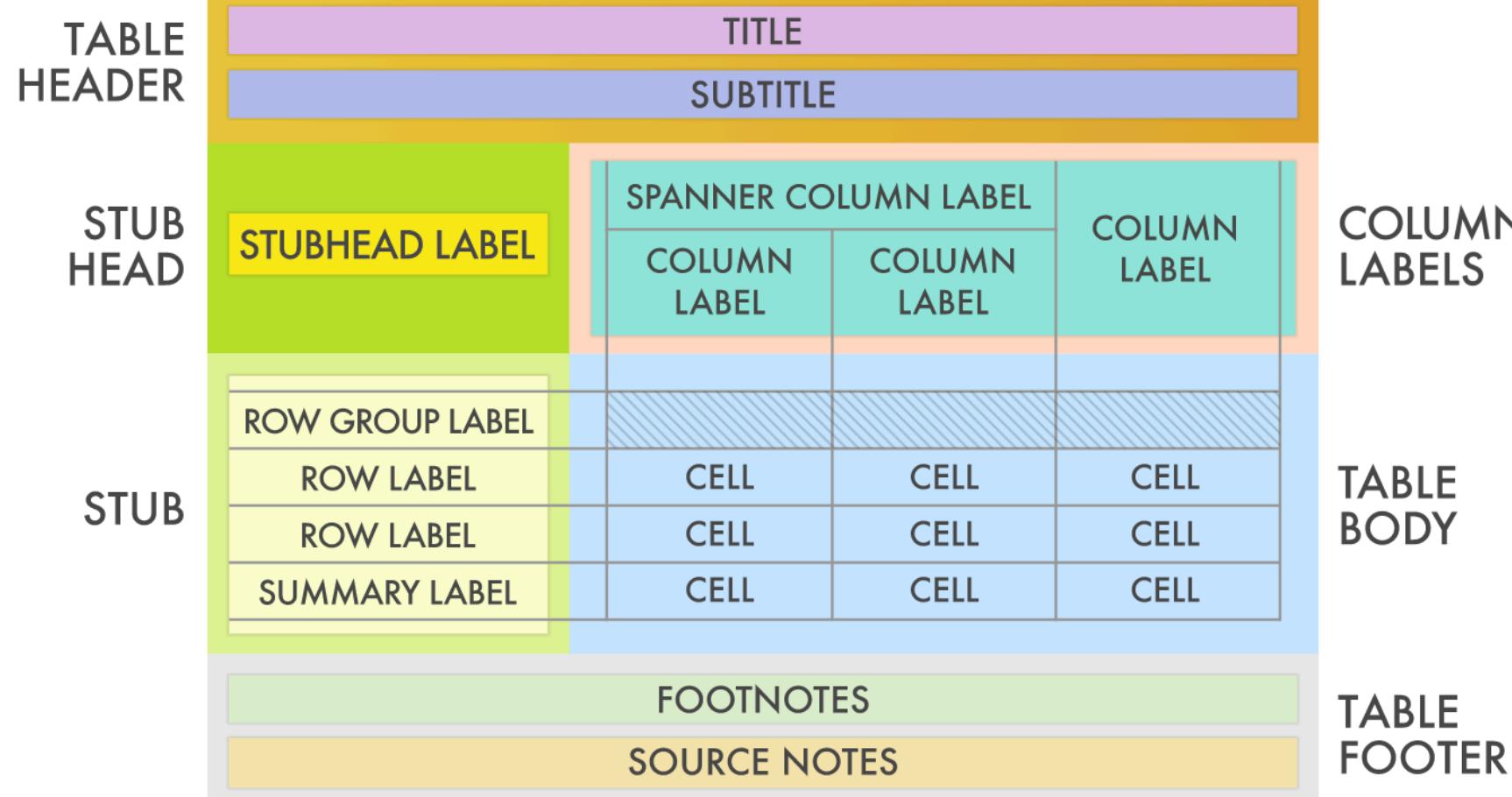
gt

lifecycle maturing CRAN 0.2.2 R-CMD-check failing codecov 76%

With the **gt** package, anyone can make wonderful-looking tables using the R programming language. The **gt** philosophy: we can construct a wide variety of useful tables with a cohesive set of table parts. These include the *table header*, the *stub*, the *column labels* and *spanner column labels*, the *table body*, and the *table footer*.



Parts of a gt Table



	manufacturer	displ	year	cyl	trans	drv	cty	hwy
a4	audi	1.8	1999	4	auto(l5)	f	18	29
a4 quattro	audi	1.8	1999	4	manual(m5)	4	18	26
a6 quattro	audi	2.8	1999	6	auto(l5)	4	15	24
c1500 suburban 2wd	chevrolet	5.3	2008	8	auto(l4)	r	14	20
corvette	chevrolet	5.7	1999	8	manual(m6)	r	16	26
k1500 tahoe 4wd	chevrolet	5.3	2008	8	auto(l4)	4	14	19
malibu	chevrolet	2.4	1999	4	auto(l4)	f	19	27
caravan 2wd	dodge	2.4	1999	4	auto(l3)	f	18	24
dakota pickup 4wd	dodge	3.7	2008	6	manual(m6)	4	15	19
durango 4wd	dodge	3.9	1999	6	auto(l4)	4	13	17

rowname_col="model"

The rownames became the "stub"

Your Turn #1

- Open up modern-tables.Rmd
- Complete the first exercise, which asks you to just type in what you saw me do

```
mpg
```

```
mpg %>%  
  gt()
```

```
mpg %>%  
  gt(rowname_col = "model")  
  ````
```

# Solution

```
tab_header(data, title, subtitle = NULL)
```

Add a table header  
(title and subtitle)

# tab\_header()

```
mpg %>%
 gt() %>%
 tab_header("asdf", "1234")
```

| model        | displ | year | cyl | trans      | drv | cty |
|--------------|-------|------|-----|------------|-----|-----|
| el           | 1.8   | 1999 | 4   | auto(l5)   | f   | 18  |
| quattro      | 1.8   | 1999 | 4   | manual(m5) | 4   | 18  |
| quattro      | 2.8   | 1999 | 6   | auto(l5)   | 4   | 15  |
| suburban 2wd | 5.3   | 2008 | 8   | auto(l4)   | r   | 14  |
| ette         | 5.7   | 1999 | 8   | manual(m6) | r   | 16  |
| tahoe 4wd    | 5.3   | 2008 | 8   | auto(l4)   | 4   | 14  |
| ou           | 2.4   | 1999 | 4   | auto(l4)   | f   | 19  |
| yan 2wd      | 2.4   | 1999 | 4   | auto(l3)   | f   | 18  |

md {gt}

R Documentation

# Interpret input text as Markdown-formatted text

## Description

Markdown! It's a wonderful thing. We can use it in certain places (e.g., footnotes, source notes, the table title, etc.) and expect it to render to HTML as Markdown does. There is the [html\(.\)](#) helper that allows you to ferry in HTML but this function `md()` ... it's almost like a two-for-one deal (you get to use Markdown plus any HTML fragments *at the same time*).

## Usage

```
md(text)
```

## Arguments

`text` The text that is understood to contain Markdown formatting.

# ?md

The gt package accepts markdown

```
```{r}
mpg %>%
  gt() %>%
  tab_header(title = md("We hold **these** truths"),
             subtitle = md("to be *self* evident"))
```

```

# What does this code do?

Take a guess

```
```{r}
mpg %>%
  gt() %>%
  tab_header(title = md("We hold **these** truths"),
             subtitle = md("to be *self* evident"))
```

```

Navigation: Packages Help Viewer

Export

We hold **these** truths  
to be *self* evident

| model             | displ | year | cyl | trans      | drv | cty |
|-------------------|-------|------|-----|------------|-----|-----|
| Cougar            | 1.8   | 1999 | 4   | auto(l5)   | f   | 18  |
| Cougar quattro    | 1.8   | 1999 | 4   | manual(m5) | 4   | 18  |
| Cougar S quattro  | 2.8   | 1999 | 6   | auto(l5)   | 4   | 15  |
| Cadillac Escalade | 5.3   | 2008 | 8   | auto(l4)   | r   | 14  |
| Cadillac Escalade | 5.7   | 1999 | 8   | manual(m6) | r   | 16  |
| Cadillac Escalade | 5.3   | 2008 | 8   | auto(l4)   | 4   | 14  |
| Cadillac Deville  | 2.4   | 1999 | 4   | auto(l4)   | f   | 19  |
| Cadillac Deville  | 2.4   | 1999 | 4   | auto(l3)   | f   | 18  |

Add a source note to the footer part of the `gt` table. A source note is useful for citing the data included in the table. Several can be added to the footer, simply use multiple calls of `tab_source_note()` and they will be inserted in the order provided. We can use Markdown formatting for the note, or, if the table is intended for HTML output, we can include HTML formatting.

```
tab_source_note(data, source_note)
```

## Arguments

**data** A table object that is created using the `gt()` function.

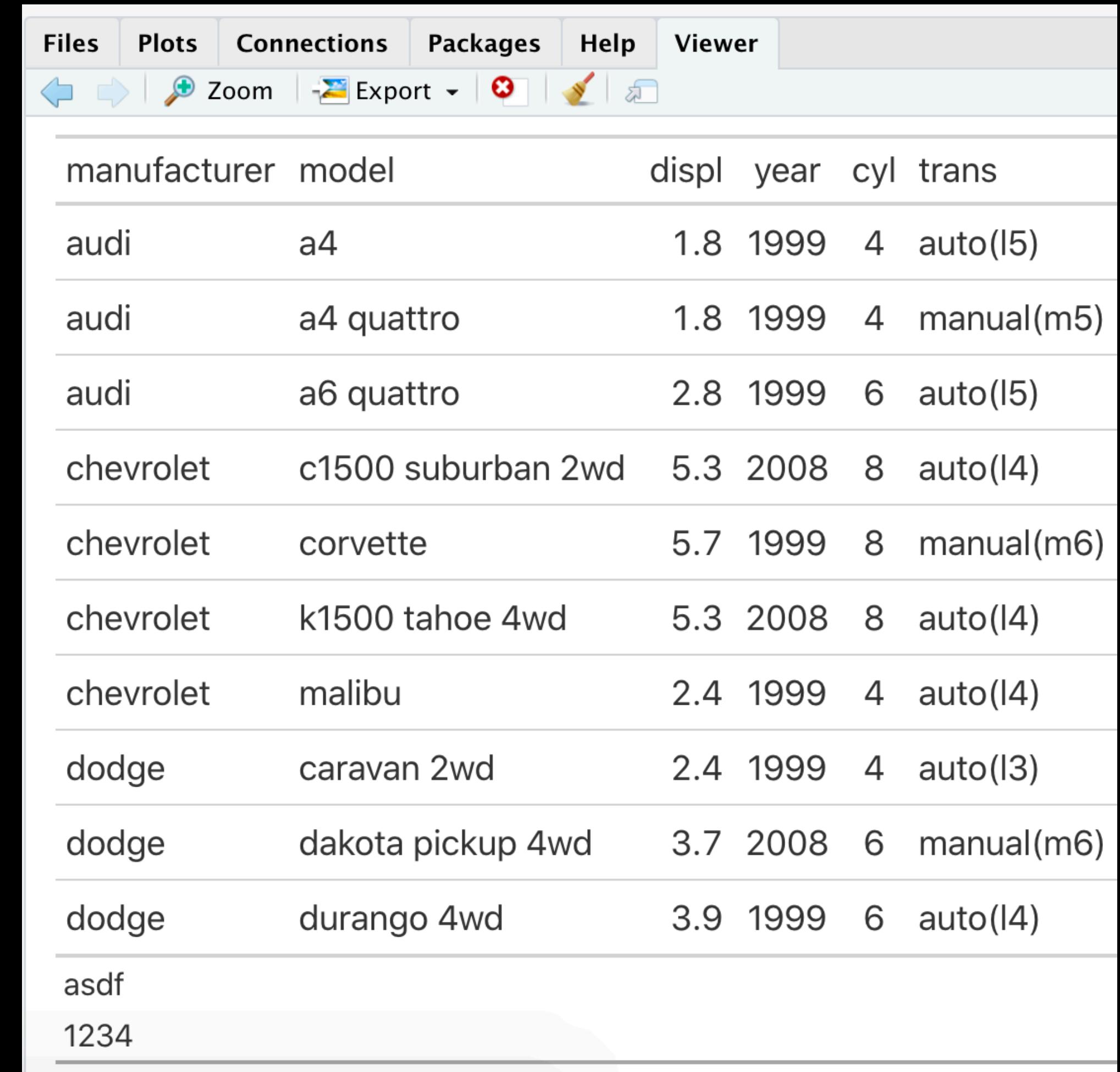
**source\_note** Text to be used in the source note. We can optionally use the `md()` and `html()` functions to style the text as Markdown or to retain HTML elements in the text.

# Source Note

(A type of foot note)

# tab\_source\_note()

```
mpg %>%
 gt() %>%
 tab_source_note("asdf") %>%
 tab_source_note("1234")
```



The screenshot shows the RStudio interface with the 'Viewer' tab selected. The table displays the following data:

| manufacturer | model              | displ | year | cyl | trans      |
|--------------|--------------------|-------|------|-----|------------|
| audi         | a4                 | 1.8   | 1999 | 4   | auto(l5)   |
| audi         | a4 quattro         | 1.8   | 1999 | 4   | manual(m5) |
| audi         | a6 quattro         | 2.8   | 1999 | 6   | auto(l5)   |
| chevrolet    | c1500 suburban 2wd | 5.3   | 2008 | 8   | auto(l4)   |
| chevrolet    | corvette           | 5.7   | 1999 | 8   | manual(m6) |
| chevrolet    | k1500 tahoe 4wd    | 5.3   | 2008 | 8   | auto(l4)   |
| chevrolet    | malibu             | 2.4   | 1999 | 4   | auto(l4)   |
| dodge        | caravan 2wd        | 2.4   | 1999 | 4   | auto(l3)   |
| dodge        | dakota pickup 4wd  | 3.7   | 2008 | 6   | manual(m6) |
| dodge        | durango 4wd        | 3.9   | 1999 | 6   | auto(l4)   |
| asdf         |                    |       |      |     |            |
| 1234         |                    |       |      |     |            |

# Your Turn #2

- Open up modern-tables.Rmd
- Complete the second exercise, which asks you to add a header and footer to your table.
- Extra credit. Use Markdown at least once.

```

mpg %>%
 gt(rowname_col = "model") %>%
 tab_header(title = md("We hold **these** truths"),
 subtitle = md("to be *self* evident")) %>%
 tab_source_note("A source note")

```

| We hold <b>these</b> truths<br>to be <i>self</i> evident |              |       |      |     |            |     |     |     |           |
|----------------------------------------------------------|--------------|-------|------|-----|------------|-----|-----|-----|-----------|
|                                                          | manufacturer | displ | year | cyl | trans      | drv | cty | hwy | fl class  |
| a4                                                       | audi         | 1.8   | 1999 | 4   | auto(l5)   | f   | 18  | 29  | p compact |
| a4 quattro                                               | audi         | 1.8   | 1999 | 4   | manual(m5) | 4   | 18  | 26  | p compact |
| a6 quattro                                               | audi         | 2.8   | 1999 | 6   | auto(l5)   | 4   | 15  | 24  | p midsize |
| c1500 suburban 2wd                                       | chevrolet    | 5.3   | 2008 | 8   | auto(l4)   | r   | 14  | 20  | r suv     |
| corvette                                                 | chevrolet    | 5.7   | 1999 | 8   | manual(m6) | r   | 16  | 26  | p 2seater |
| k1500 tahoe 4wd                                          | chevrolet    | 5.3   | 2008 | 8   | auto(l4)   | 4   | 14  | 19  | r suv     |
| malibu                                                   | chevrolet    | 2.4   | 1999 | 4   | auto(l4)   | f   | 19  | 27  | r midsize |
| caravan 2wd                                              | dodge        | 2.4   | 1999 | 4   | auto(l3)   | f   | 18  | 24  | r minivan |
| dakota pickup 4wd                                        | dodge        | 3.7   | 2008 | 6   | manual(m6) | 4   | 15  | 19  | r pickup  |
| durango 4wd                                              | dodge        | 3.9   | 1999 | 6   | auto(l4)   | 4   | 13  | 17  | r suv     |

A source note

# Header, Subtitle, Footer

(With Markdown)

| We hold <b>these</b> truths<br>to be self evident |              |       |      |     |            |     |     |     |    |         |  |  |
|---------------------------------------------------|--------------|-------|------|-----|------------|-----|-----|-----|----|---------|--|--|
|                                                   | manufacturer | displ | year | cyl | trans      | drv | cty | hwy | fl | class   |  |  |
| <b>Foreign Cars</b>                               |              |       |      |     |            |     |     |     |    |         |  |  |
| a4                                                | audi         | 1.8   | 1999 | 4   | auto(l5)   | f   | 18  | 29  | p  | compact |  |  |
| a4 quattro                                        | audi         | 1.8   | 1999 | 4   | manual(m5) | 4   | 18  | 26  | p  | compact |  |  |
| a6 quattro                                        | audi         | 2.8   | 1999 | 6   | auto(l5)   | 4   | 15  | 24  | p  | midsize |  |  |
| <b>Domestic Cars</b>                              |              |       |      |     |            |     |     |     |    |         |  |  |
| c1500 suburban 2wd                                | chevrolet    | 5.3   | 2008 | 8   | auto(l4)   | r   | 14  | 20  | r  | suv     |  |  |
| corvette                                          | chevrolet    | 5.7   | 1999 | 8   | manual(m6) | r   | 16  | 26  | p  | 2seater |  |  |
| k1500 tahoe 4wd                                   | chevrolet    | 5.3   | 2008 | 8   | auto(l4)   | 4   | 14  | 19  | r  | suv     |  |  |
| malibu                                            | chevrolet    | 2.4   | 1999 | 4   | auto(l4)   | f   | 19  | 27  | r  | midsize |  |  |
| caravan 2wd                                       | dodge        | 2.4   | 1999 | 4   | auto(l3)   | f   | 18  | 24  | r  | minivan |  |  |
| dakota pickup 4wd                                 | dodge        | 3.7   | 2008 | 6   | manual(m6) | 4   | 15  | 19  | r  | pickup  |  |  |
| durango 4wd                                       | dodge        | 3.9   | 1999 | 6   | auto(l4)   | 4   | 13  | 17  | r  | suv     |  |  |
| A source note                                     |              |       |      |     |            |     |     |     |    |         |  |  |

# Row Groups

# Add a row group to a **gt** table

## Description

Create a row group with a collection of rows. This requires specification of the rows to be included, either by supplying row labels, row indices, or through use of a select helper function like `starts_with()`.

## Usage

```
tab_row_group(data, group = NULL, rows = NULL, others = NULL)
```

## Arguments

- data** A table object that is created using the [gt\(\)](#) function.
- group** The name of the row group. This text will also serve as the row group label.
- rows** The rows to be made components of the row group. Can either be a vector of row captions provided in `c()`, a vector of row indices, or a helper function focused on selections. The select helper functions are: [starts\\_with\(\)](#), [ends\\_with\(\)](#), [contains\(\)](#), [matches\(\)](#), [one\\_of\(\)](#), and [everything\(\)](#).
- others** An option to set a default row group label for any rows not formally placed in a row group named by `group` in any call of `tab_row_group()`. A separate call to `tab_row_group()` with only a value to `others` is possible and makes explicit that the call is meant to provide a default row group label. If this is not set and there are rows that haven't been placed into a row group (where one or more row groups already exist), those rows will be automatically placed into a row group without a label.

# ?tab\_row\_group

## group, row

# tab\_row\_group

```
gt(mpg) %>%
 tab_row_group("4 cylinder cars", cyl == 4)
```

| manufacturer    | model              | displ | year | cyl | trans |
|-----------------|--------------------|-------|------|-----|-------|
| 4 cylinder cars |                    |       |      |     |       |
| audi            | a4                 | 1.8   | 1999 | 4   | auto  |
| audi            | a4 quattro         | 1.8   | 1999 | 4   | man   |
| chevrolet       | malibu             | 2.4   | 1999 | 4   | auto  |
| dodge           | caravan 2wd        | 2.4   | 1999 | 4   | auto  |
| audi            | a6 quattro         | 2.8   | 1999 | 6   | auto  |
| chevrolet       | c1500 suburban 2wd | 5.3   | 2008 | 8   | auto  |
| chevrolet       | corvette           | 5.7   | 1999 | 8   | man   |
| chevrolet       | k1500 tahoe 4wd    | 5.3   | 2008 | 8   | auto  |
| dodge           | dakota pickup 4wd  | 3.7   | 2008 | 6   | man   |
| dodge           | durango 4wd        | 3.9   | 1999 | 6   | auto  |

# Your Turn #3

- Open up modern-tables.Rmd
- Complete the 3rd exercise, which asks you to group the cars by year

```

  ````{r}
gt(mpg) %>%
  tab_row_group("Older Cars", year == 1999) %>%
  tab_row_group("Newer Cars", year == 2008)
  ````
```

| manufacturer | model              | displ | year | cyl | trans      | drv | cty | hwy | fl | class   |
|--------------|--------------------|-------|------|-----|------------|-----|-----|-----|----|---------|
| Newer Cars   |                    |       |      |     |            |     |     |     |    |         |
| chevrolet    | c1500 suburban 2wd | 5.3   | 2008 | 8   | auto(l4)   | r   | 14  | 20  | r  | suv     |
| chevrolet    | k1500 tahoe 4wd    | 5.3   | 2008 | 8   | auto(l4)   | 4   | 14  | 19  | r  | suv     |
| dodge        | dakota pickup 4wd  | 3.7   | 2008 | 6   | manual(m6) | 4   | 15  | 19  | r  | pickup  |
| Older Cars   |                    |       |      |     |            |     |     |     |    |         |
| audi         | a4                 | 1.8   | 1999 | 4   | auto(l5)   | f   | 18  | 29  | p  | compact |
| audi         | a4 quattro         | 1.8   | 1999 | 4   | manual(m5) | 4   | 18  | 26  | p  | compact |
| audi         | a6 quattro         | 2.8   | 1999 | 6   | auto(l5)   | 4   | 15  | 24  | p  | midsize |
| chevrolet    | corvette           | 5.7   | 1999 | 8   | manual(m6) | r   | 16  | 26  | p  | 2seater |
| chevrolet    | malibu             | 2.4   | 1999 | 4   | auto(l4)   | f   | 19  | 27  | r  | midsize |
| dodge        | caravan 2wd        | 2.4   | 1999 | 4   | auto(l3)   | f   | 18  | 24  | r  | minivan |
| dodge        | durango 4wd        | 3.9   | 1999 | 6   | auto(l4)   | 4   | 13  | 17  | r  | suv     |

# Cars Grouped by Year

## Older and Newer

Easily Create Presentation-Quality Tables with R

gt 0.2.2

Intro Reference Articles News

With the **gt** package, anyone can make wonderful-looking tables using the **R** programming language. The **gt** philosophy: we can construct a wide variety of useful tables with a cohesive set of table parts. These include the *table header*, the *stub*, the *column labels* and *spanner column labels*, the *table body*, and the *table footer*.

## Parts of a *gt* Table

It all begins with preprocessed **table data** (be it a tibble or a data frame). You then decide how to compose your **gt table** with the

**Links**

- Download from CRAN at <https://cloud.r-project.org/package=gt>
- Browse source code at <https://github.com/rstudio/gt/>
- Report a bug at <https://github.com/rstudio/gt/issues>

**License**

- Full license
- MIT + file LICENSE

**Community**

- Contributing guide
- Code of conduct

**Developers**

- Richard Iannone  
Author, maintainer
- Joe Cheng  
Author
- Barret Schloerke  
Author
- Studio  
Copyright holder, funder

# gt.rstudio.com

Lots of training material

# gtsummary

A package just for you!

# gtsummary

The `{gtsummary}` package provides an elegant and flexible way to create publication-ready analytical and summary tables using the R programming language. The `{gtsummary}` package summarizes data sets, regression models, and more, using sensible defaults with highly customizable capabilities.



- **Summarize data frames or tibbles** easily in R. Perfect for presenting descriptive statistics, comparing group **demographics** (e.g creating a **Table 1** for medical journals), and more. Automatically detects continuous, categorical, and dichotomous variables in your data set, calculates appropriate descriptive statistics, and also includes amount of missingness in each variable.
- **Summarize regression models** in R and include reference rows for categorical variables. Common regression models, such as logistic regression and Cox proportional hazards regression, are automatically identified and the tables are pre-filled with appropriate column headers (i.e. Odds Ratio and Hazard Ratio).
- **Customize gtsummary tables** using a growing list of formatting/styling functions. **Bold** labels, **italicize** levels, **add p-value** to summary tables, **style** the statistics however you choose, **merge** or **stack** tables to present results side by side... there are so many possibilities to create the table of your dreams!
- **Report statistics inline** from summary tables and regression summary tables in **R markdown**. Make your reports completely reproducible!

By leveraging `{broom}`, `{gt}`, and `{labelled}` packages, `{gtsummary}` creates beautifully formatted, ready-to-share summary and result tables in a single line of R code!

Check out the examples below, review the [vignettes](#) for a detailed exploration of the output options, and view the [gallery](#) for various customization examples.

# Written by and for biostatisticians

install.packages("gtsummary")

**Daniel D. Sjoberg**

Senior Research Biostatistician

Memorial Sloan Kettering Cancer Center



I am a Senior Biostatistician at [Memorial Sloan Kettering Cancer Center](#). I am also a DrPH candidate in Biostatistics at [Columbia University](#). My research interests include adaptive methods in clinical trials, precision medicine, and prostate cancer screening methods. In my time away from work, I enjoy baking, going to the beach, running, and programming in R.

# (Really)

**Characteristic****N = 200<sup>1</sup>**

## Chemotherapy Treatment

Drug A 98 (49%)

Drug B 102 (51%)

Age 47 (38, 57)

Unknown 11

## Grade

I 68 (34%)

II 68 (34%)

III 64 (32%)

Tumor Response 61 (32%)

Unknown 7

<sup>1</sup> Statistics presented: n (%); Median (IQR)

## Create a table of summary statistics

### Description

The `tbl_summary` function calculates descriptive statistics for continuous, categorical, and dichotomous variables. Review the [tbl\\_summary vignette](#) for detailed examples.

### Usage

```
tbl_summary(
 data,
 by = NULL,
 label = NULL,
 statistic = NULL,
 digits = NULL,
 type = NULL,
 value = NULL,
 missing = NULL,
 missing_text = NULL,
 sort = NULL,
 percent = NULL,
 include = everything(),
 group = NULL
)
```

# ?tbl\_summary

```
install.packages("gtsummary")
```

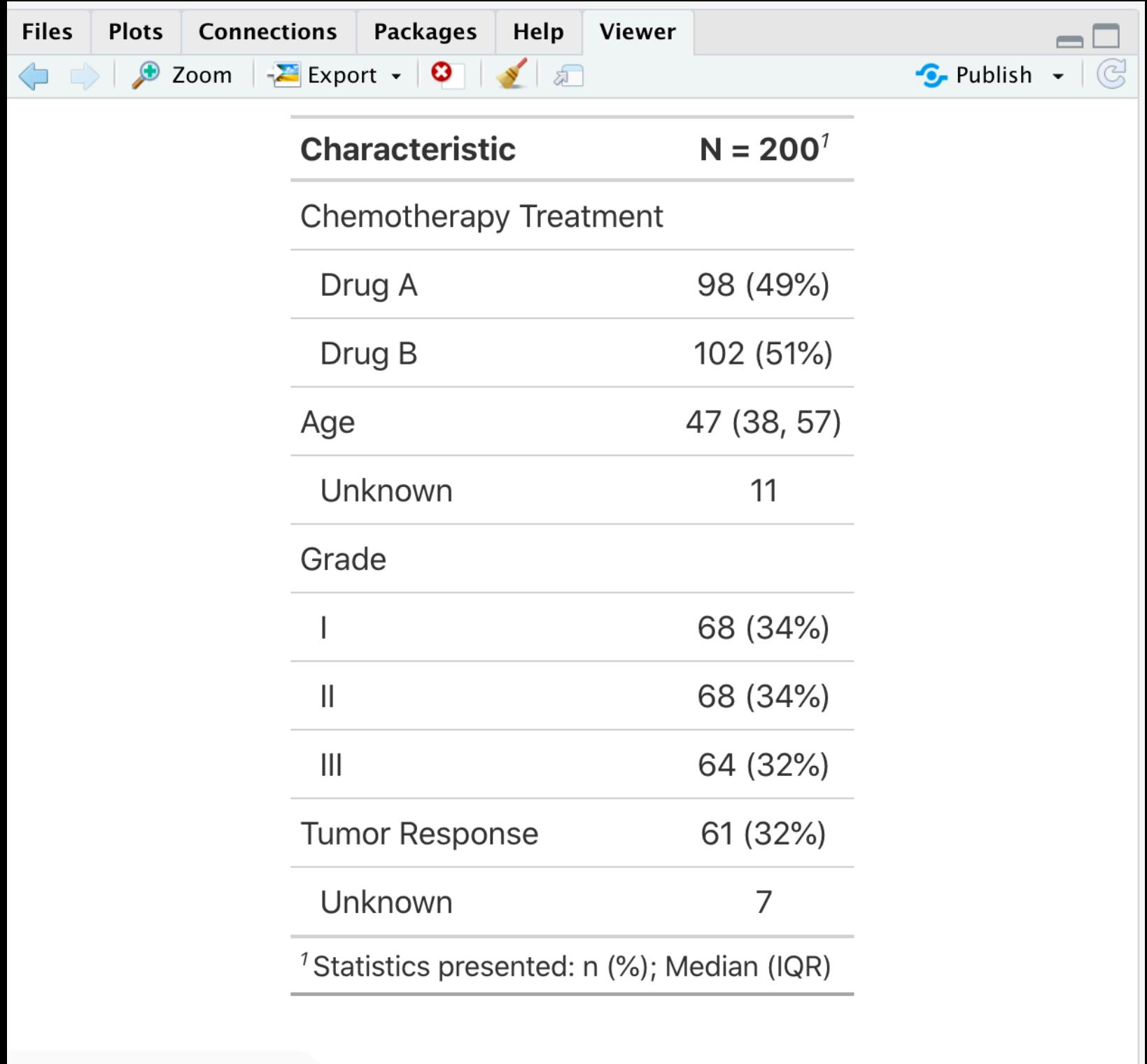
# Your Turn #4

- Open up modern-tables.Rmd
- Complete the 4th exercise, which asks you to create a summary table of example trial data

```
library(gtsummary)

view this variable, and then create a summary table of it
trial2 = trial %>% select(trt, age, grade, response)

tbl_summary(trial2)
```
```



The screenshot shows the RStudio interface with the 'Viewer' tab selected. The output is a gtsummary table titled 'Characteristic' with a sample size of N = 200¹. The table includes columns for Chemotherapy Treatment, Drug A (98, 49%), Drug B (102, 51%), Age (47, median 38, IQR 57), Unknown (11), Grade, Tumor Response, and Unknown. The Grade column has three rows: I (68, 34%), II (68, 34%), and III (64, 32%). The Tumor Response column has two rows: 61 (32%) and Unknown (7). A note at the bottom states: ¹ Statistics presented: n (%); Median (IQR).

Characteristic	N = 200 ¹
Chemotherapy Treatment	
Drug A	98 (49%)
Drug B	102 (51%)
Age	47 (38, 57)
Unknown	11
Grade	
I	68 (34%)
II	68 (34%)
III	64 (32%)
Tumor Response	61 (32%)
Unknown	7

¹ Statistics presented: n (%); Median (IQR)

gtsummary table

?tbl_summary

tbl_summary(trial2, by = trt)

Characteristic	Drug A, N = 98 ¹	Drug B, N = 102 ¹
Age	46 (37, 59)	48 (39, 56)
Unknown	7	4
Grade		
I	35 (36%)	33 (32%)
II	32 (33%)	36 (35%)
III	31 (32%)	33 (32%)
Tumor Response	28 (29%)	33 (34%)
Unknown	3	4

¹ Statistics presented: Median (IQR); n (%)

```
tbl_summary(trial2, by = trt) %>%  
  add_n()
```

Characteristic	N	Drug A, N = 98 ¹	Drug B, N = 102 ¹
Age	189	46 (37, 59)	48 (39, 56)
Unknown		7	4
Grade	200		
I		35 (36%)	33 (32%)
II		32 (33%)	36 (35%)
III		31 (32%)	33 (32%)
Tumor Response	193	28 (29%)	33 (34%)
Unknown		3	4

¹ Statistics presented: Median (IQR); n (%)

%>% **add_n()**

Adds "N" column

```
tbl_summary(trial2, by = trt) %>%
  add_n() %>%
  add_p()
```

Characteristic	N	Drug A, N = 98 ¹	Drug B, N = 102 ¹	p-value ²
Age	189	46 (37, 59)	48 (39, 56)	0.7
Unknown		7	4	
Grade	200			0.9
I		35 (36%)	33 (32%)	
II		32 (33%)	36 (35%)	
III		31 (32%)	33 (32%)	
Tumor Response	193	28 (29%)	33 (34%)	0.6
Unknown		3	4	

¹ Statistics presented: Median (IQR); n (%)

² Statistical tests performed: Wilcoxon rank-sum test; chi-square test of independence

%>% **add_p()**

Adds "p-value" column

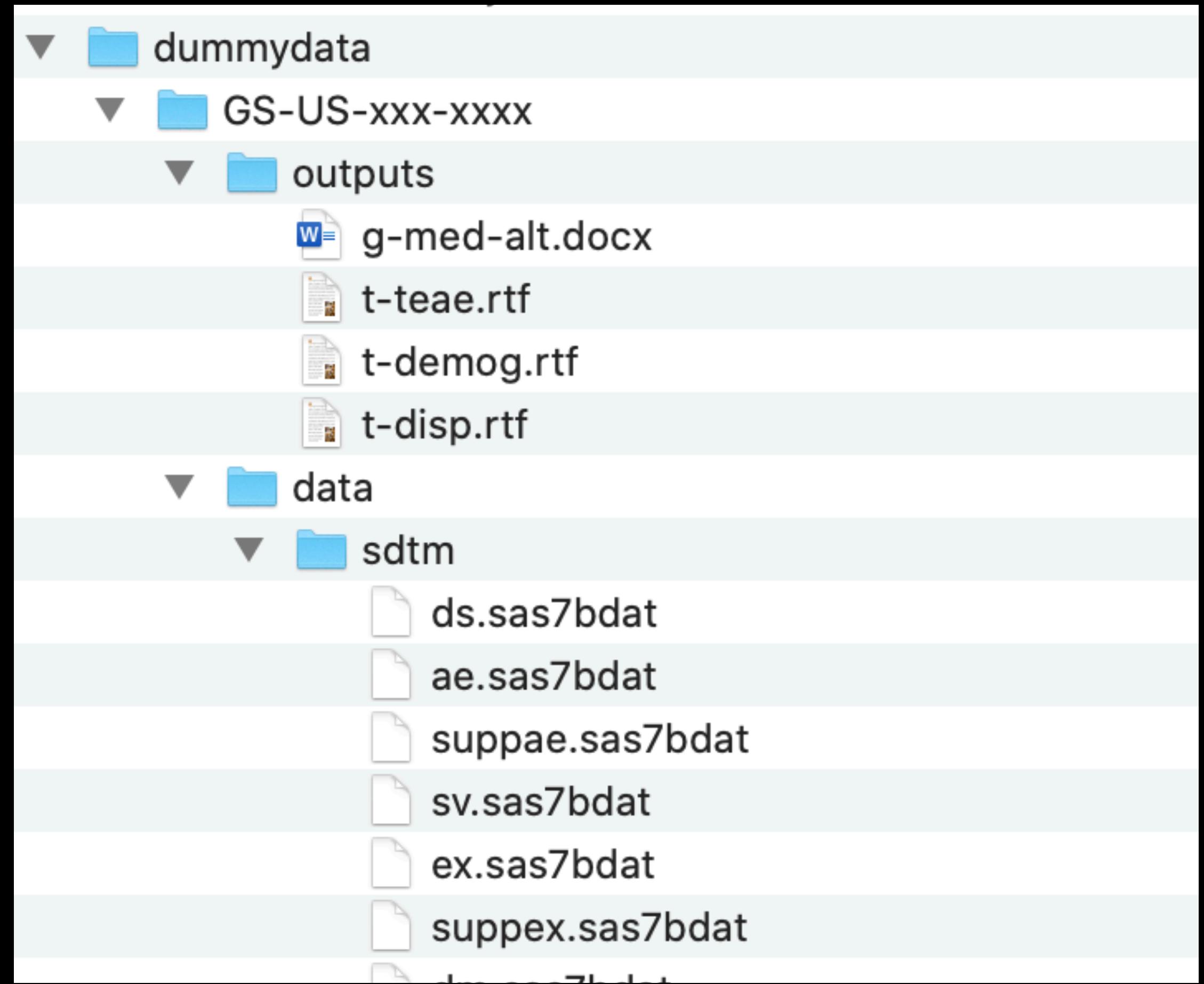
Screenshot of the RStudio Viewer pane showing the 'Vignettes and other documentation' page for the 'gtsummary' package.

The title 'Vignettes and other documentation' is displayed above the R logo. Below the title, there is a large, light gray circular icon with a small upward-pointing arrow symbol.

Vignettes from package 'gtsummary'

gtsummary::gallery	Table Gallery	HTML source R code
gtsummary::global_options	Global Options	HTML source R code
gtsummary::gtsummary_definition	Definition of a gtsummary Object	HTML source R code
gtsummary::inline_text	Tutorial: inline_text	HTML source R code
gtsummary::rmarkdown	gtsummary + R Markdown	HTML source R code
gtsummary::tbl_regression	Tutorial: tbl_regression	HTML source R code
gtsummary::tbl_summary	Tutorial: tbl_summary	HTML source R code
gtsummary::themes	gtsummary themes	HTML source R code

Package Vignettes



dummydata