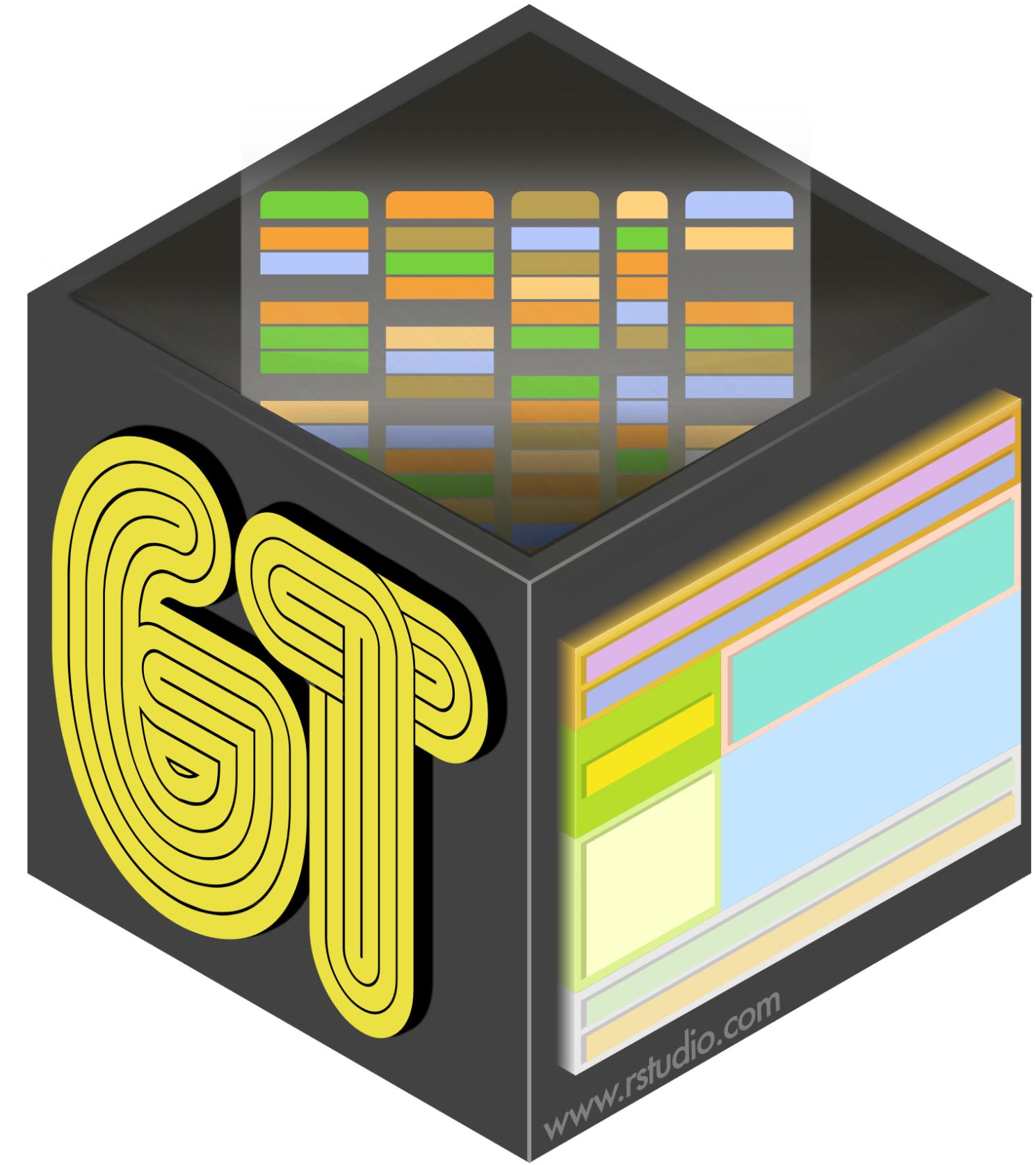
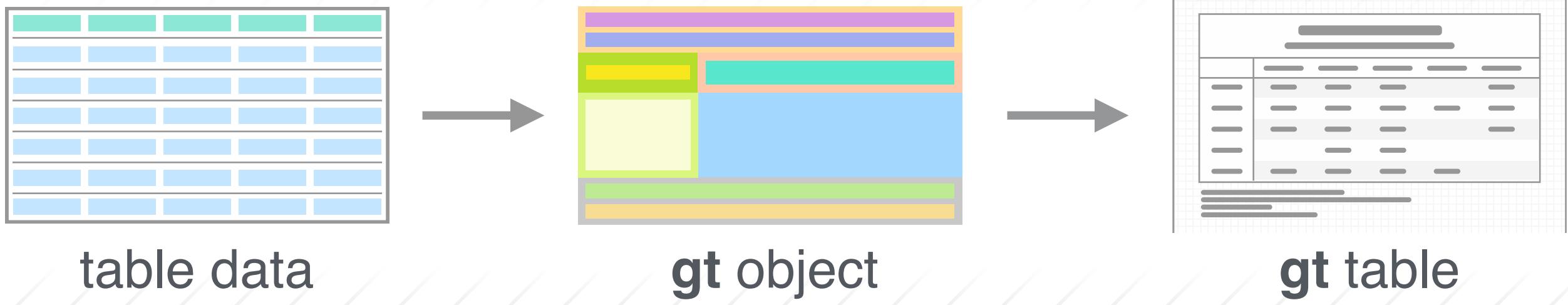


Making Tables With the **gt** Package



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Let's Look at the Most Useful Features of Tables

Categorizing the Useful Features of a Table

The Cars of gtcars							
These are some fine automobiles							
Performance							
	Year	Trim	Transmission	MPG	HP	Torque	MSRP ¹
Germany							
BMW i8	2016	Mega World Coupe	6 Speed Automatic/Manual	28c 29h ²	357 @5800rpm	420 @3700rpm	\$140,700
Mercedes-Benz AMG GT	2016	S Coupe	7 Speed Automatic	16c 22h	503 @6250rpm	479 @1750rpm	\$129,900
Italy							
Ferrari LaFerrari	2015	Base Coupe	7 Speed Automatic	12c 16h	949 @9000rpm ³	664 @6750rpm	\$1,416,362
Lamborghini Aventador	2015	LP 700-4 Coupe	7 Speed Automatic	11c 18h	700 @8250rpm	507 @5500rpm	\$397,500
United States							
Dodge Viper	2017	GT Coupe	6 Speed Manual	12c 19h	645 @5000rpm	600 @5000rpm	\$95,895
Ford GT	2017	Base Coupe	7 Speed Automatic	11c 18h	647 @6250rpm	550 @5900rpm	\$447,000
Japan							
Acura NSX	2017	Base Coupe	9 Speed Automatic	21c 22h	573 @6500rpm	476 @2000rpm	\$156,000
Nissan GT-R	2016	Premium Coupe	6 Speed Automatic	16c 22h	545 @6400rpm	436 @3200rpm	\$101,770

¹ All prices in U.S. dollars (USD).

² Best gas mileage (city) of all the gtcars.

³ The highest horsepower of all the gtcars.

Source: Various pages within the Edmonds website.

Categorizing the Useful Features of a Table

table header
with a title
and a subtitle

The Cars of gtcars
These are some fine automobiles

row labels
along with
row grouping

	Year	Trim	Transmission	MPG	HP	Torque	MSRP ¹
Germany							
BMW i8	2016	Mega World Coupe	6 Speed Automatic/Manual	28c 29h ²	357 @5800rpm	420 @3700rpm	\$140,700
Mercedes-Benz AMG GT	2016	S Coupe	7 Speed Automatic	16c 22h	503 @6250rpm	479 @1750rpm	\$129,900
Italy							
Ferrari LaFerrari	2015	Base Coupe	7 Speed Automatic	12c 16h	949 @9000rpm ³	664 @6750rpm	\$1,416,362
Lamborghini Aventador	2015	LP 700-4 Coupe	7 Speed Automatic	11c 18h	700 @8250rpm	507 @5500rpm	\$397,500
United States							
Dodge Viper	2017	GT Coupe	6 Speed Manual	12c 19h	645 @5000rpm	600 @5000rpm	\$95,895
Ford GT	2017	Base Coupe	7 Speed Automatic	11c 18h	647 @6250rpm	550 @5900rpm	\$447,000
Japan							
Acura NSX	2017	Base Coupe	9 Speed Automatic	21c 22h	573 @6500rpm	476 @2000rpm	\$156,000
Nissan GT-R	2016	Premium Coupe	6 Speed Automatic	16c 22h	545 @6400rpm	436 @3200rpm	\$101,770

column labels
along with
column grouping

data formatting
need to transform raw
data for presentation

a source note

¹ All prices in U.S. dollars (USD).

² Best gas mileage (city) of all the gtcars.

³ The highest horsepower of all the gtcars.

Source: Various pages within the Edmonds website.

footnotes
are in the right order

Categorizing the Useful Features of a Table

The ordering of footnotes must always be correct.

And it's **no fun** doing this manually.

The Cars of gtcars							
These are some fine automobiles							
		Year	Trim	Transmission	Performance	MSRP ¹	
Germany							
BMW i8	2016	Mega World Coupe	6 Speed Automatic/Manual	28c 29h ²	357 @5800rpm	420 @3700rpm	\$140,700
Mercedes-Benz AMG GT	2016	S Coupe	7 Speed Automatic	16c 22h	503 @6250rpm	479 @1750rpm	\$129,900
Italy							
Ferrari LaFerrari	2015	Base Coupe	7 Speed Automatic	12c 16h	949 @9000rpm ³	664 @6750rpm	\$1,416,362
Lamborghini Aventador	2015	LP 700-4 Coupe	7 Speed Automatic	11c 18h	700 @8250rpm	507 @5500rpm	\$397,500
United States							
Dodge Viper	2017	GT Coupe	6 Speed Manual	12c 19h	645 @5000rpm	600 @5000rpm	\$95,895
Ford GT	2017	Base Coupe	7 Speed Automatic	11c 18h	647 @6250rpm	550 @5900rpm	\$447,000
Japan							
Acura NSX	2017	Base Coupe	9 Speed Automatic	21c 22h	573 @6500rpm	476 @2000rpm	\$156,000
Nissan GT-R	2016	Premium Coupe	6 Speed Automatic	16c 22h	545 @6400rpm	436 @3200rpm	\$101,770

1
2
3

¹All prices in U.S. dollars (USD).

²Best gas mileage (city) of all the gtcars.

³The highest horsepower of all the gtcars.

Source: Various pages within the Edmonds website.

1

2

3

footnotes
are in the right order

Categorizing the Useful Features of a Table

To do this right, a system needs to **index** the locations *left-to-right, top-to-bottom.*

This system also must be smart about the formatting of the **footnote marks**.

The Cars of gtcars ¹								
These are some fine automobiles ²								
³	⁴ Year ⁵	⁶ Trim	⁷ Transmission	⁸ MPG	⁹ HP	¹⁰ Torque	¹¹ MSRP ¹	
Germany ¹³								
BMW i8 ¹⁴	¹⁵ 2016	Mega World Coupe ¹⁶	6 Speed Automatic/Manual ¹⁷	28c ¹⁸ 29h ²	357 ¹⁹ @5800rpm	420 ²⁰ @3700rpm	\$140,700	
Mercedes-Benz AMG GT ²²	²³ 2016	S Coupe ²⁴	7 Speed Automatic ²⁵	16c ²⁶ 22h	503 ²⁷ @6250rpm	479 ²⁸ @1750rpm	\$129,900	²⁹
Italy ³⁰								
Ferrari LaFerrari ³¹	³² 2015	Base Coupe ³³	7 Speed Automatic ³⁴	12c ³⁵ 16h	949 ³⁶ @9000rpm ³	664 ³⁷ @6750rpm	\$1,416,362	³⁸
Lamborghini Aventador ³⁹	⁴⁰ 2015	LP 700-4 Coupe ⁴¹	7 Speed Automatic ⁴²	11c ⁴³ 18h	700 ⁴⁴ @8250rpm	507 ⁴⁵ @5500rpm	\$397,500	⁴⁶
United States ⁴⁷								
Dodge Viper ⁴⁸	⁴⁹ 2017	GT Coupe ⁵⁰	6 Speed Manual ⁵¹	12c ⁵² 19h	645 ⁵³ @5000rpm	600 ⁵⁴ @5000rpm	\$95,895	⁵⁵
Ford GT ⁵⁶	⁵⁷ 2017	Base Coupe ⁵⁸	7 Speed Automatic ⁵⁹	11c ⁶⁰ 18h	647 ⁶¹ @6250rpm	550 ⁶² @5900rpm	\$447,000	⁶³
Japan ⁶⁴								
Acura NSX ⁶⁵	⁶⁶ 2017	Base Coupe ⁶⁷	9 Speed Automatic ⁶⁸	21c ⁶⁹ 22h	573 ⁷⁰ @6500rpm	476 ⁷¹ @2000rpm	\$156,000	⁷²
Nissan GT-R ⁷³	⁷⁴ 2016	Premium Coupe ⁷⁵	6 Speed Automatic ⁷⁶	16c ⁷⁷ 22h	545 ⁷⁸ @6400rpm	436 ⁷⁹ @3200rpm	\$101,770	⁸⁰

¹ All prices in U.S. dollars (USD).

² Best gas mileage (city) of all the **gtcars**.

³ The highest horsepower of all the **gtcars**.

*The **gt** Package Formalizes the Parts of a Table*

The Structural Parts of a Table

This is the most basic form of a **gt** table:

column label	column label	column label
cell	cell	cell

column labels

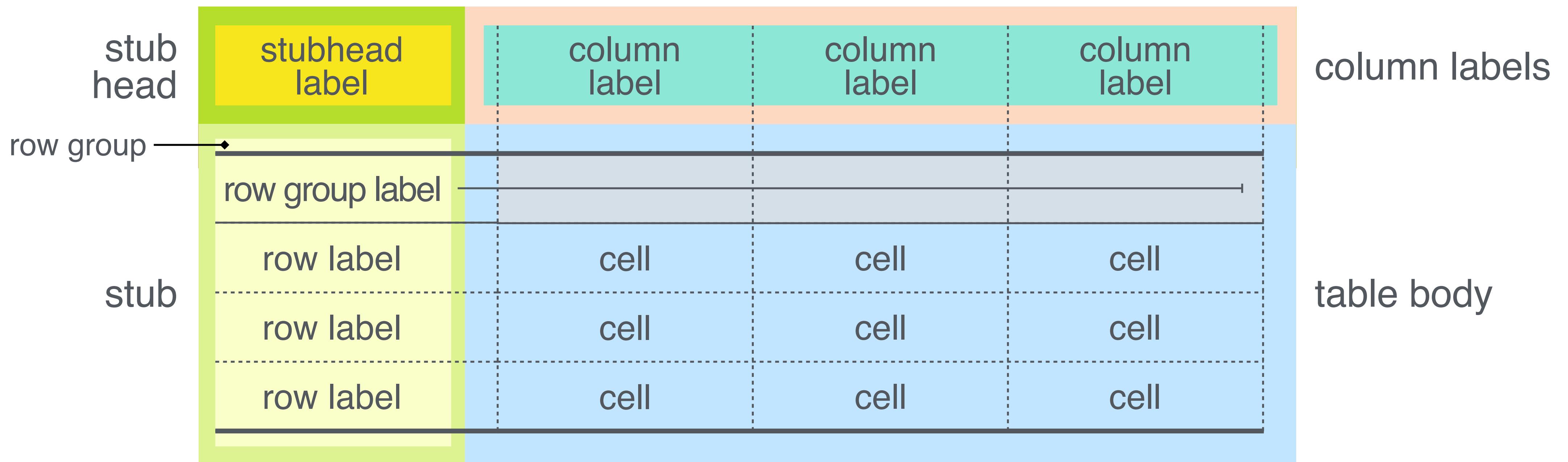
table body

The Structural Parts of a Table

stub head	stubhead label	column label	column label	column label	column labels
stub	row label	cell	cell	cell	table body
	row label	cell	cell	cell	
	row label	cell	cell	cell	
	row label	cell	cell	cell	

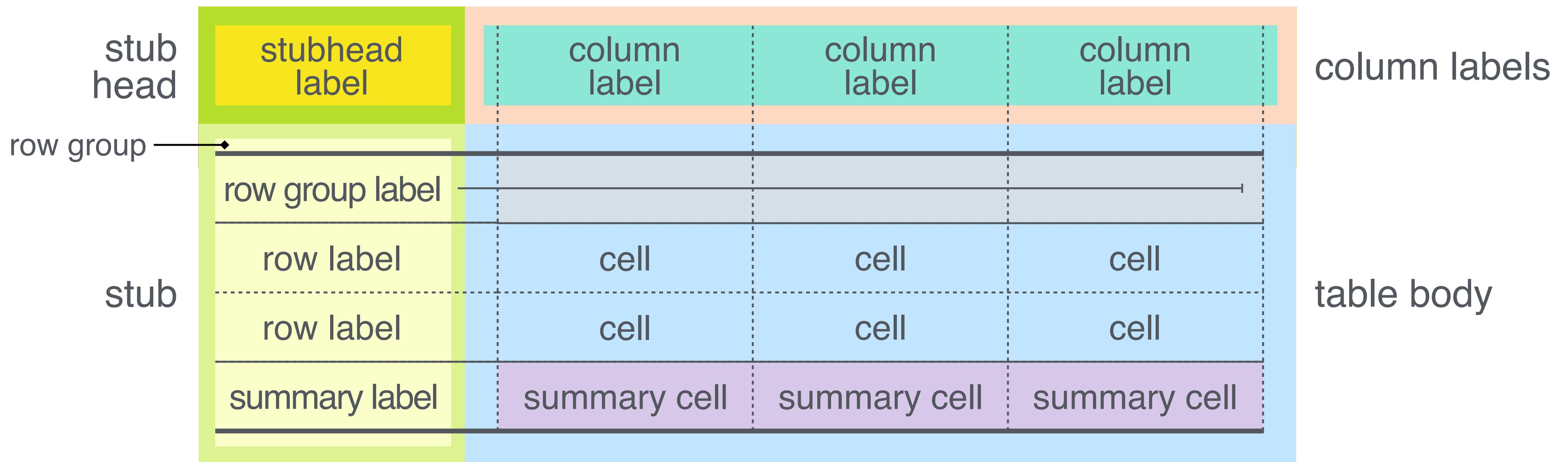
A table stub is not always needed but it can be useful.

The Structural Parts of a Table



A table stub is not always needed but it can be useful.
Rows can be grouped, and they can have labels.

The Structural Parts of a Table

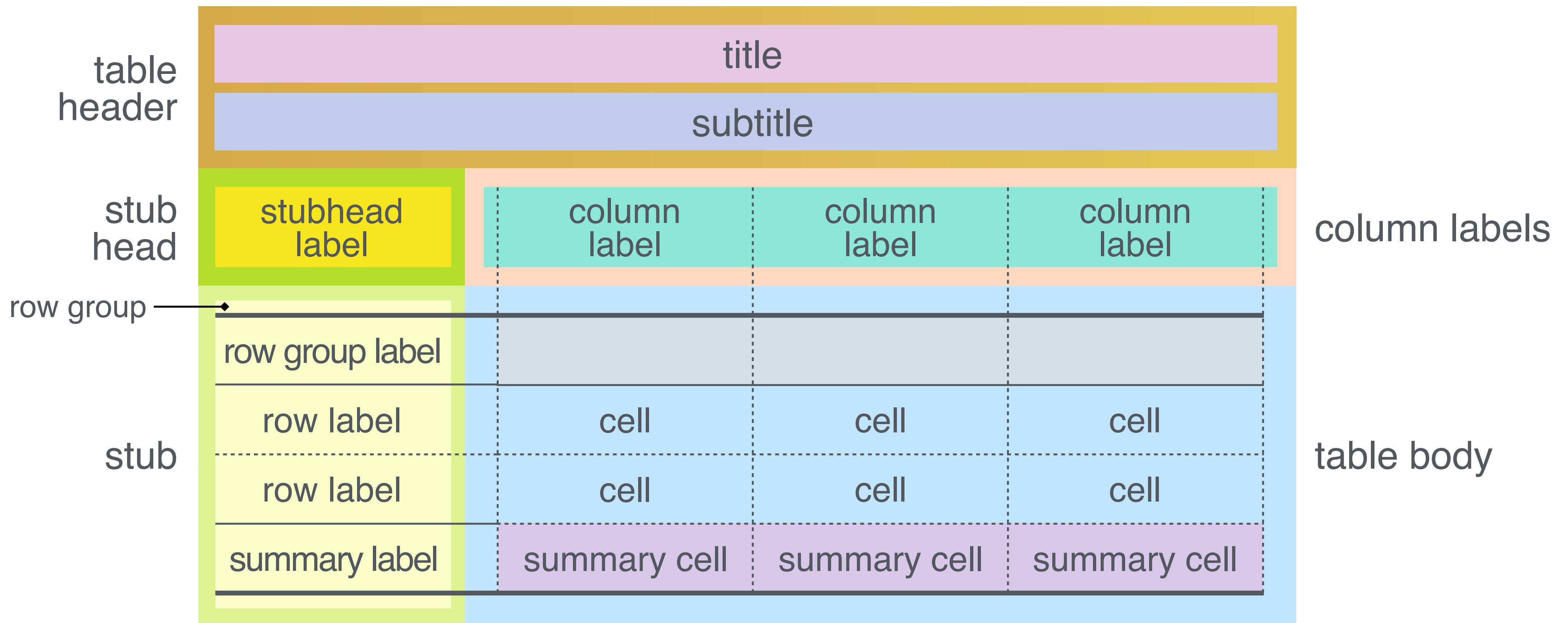


A table stub is not always needed but it can be useful.

Rows can be grouped, and they can have labels.

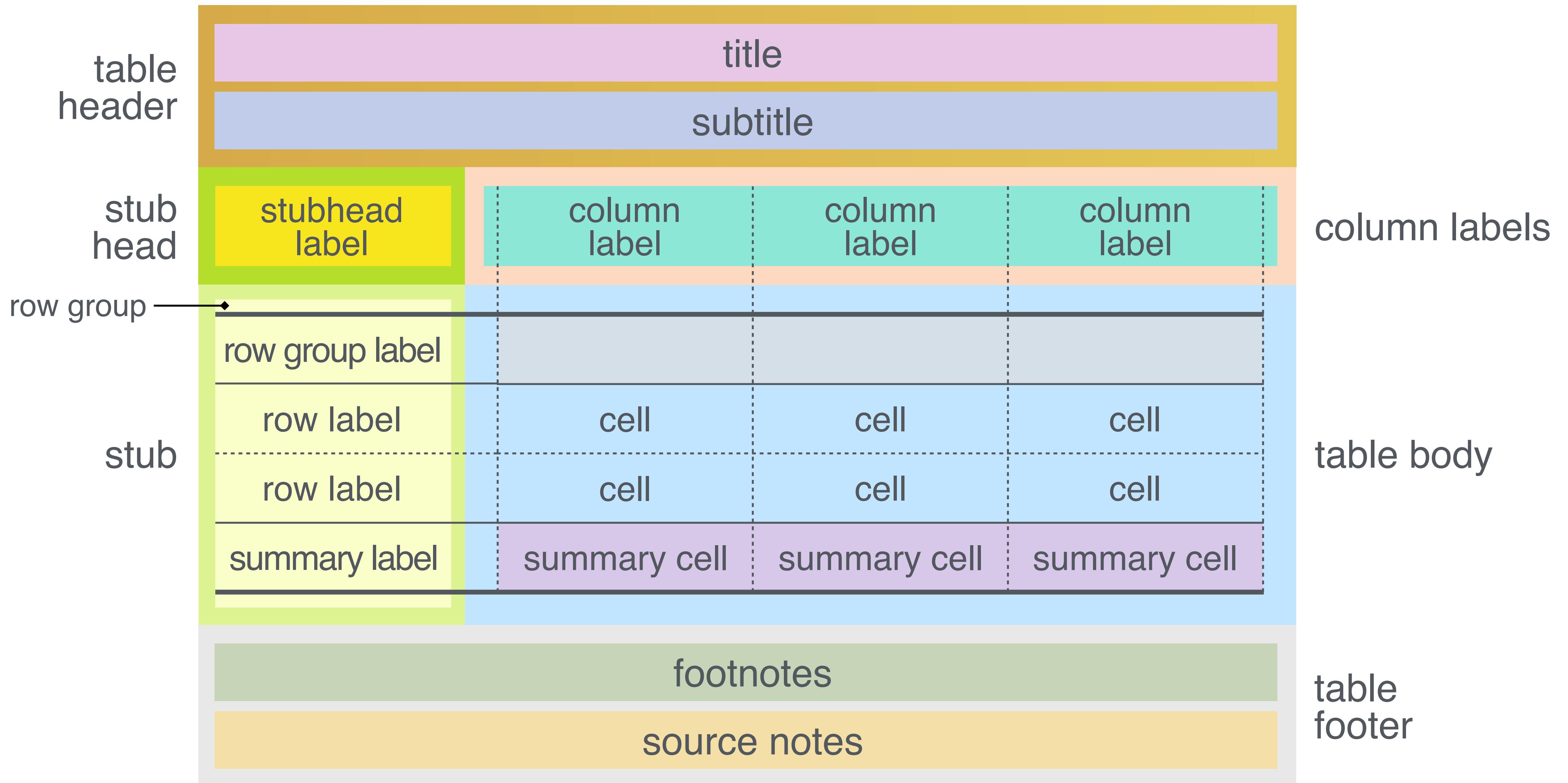
Summary rows can be added to groups (or they can work across groups).

The Structural Parts of a Table



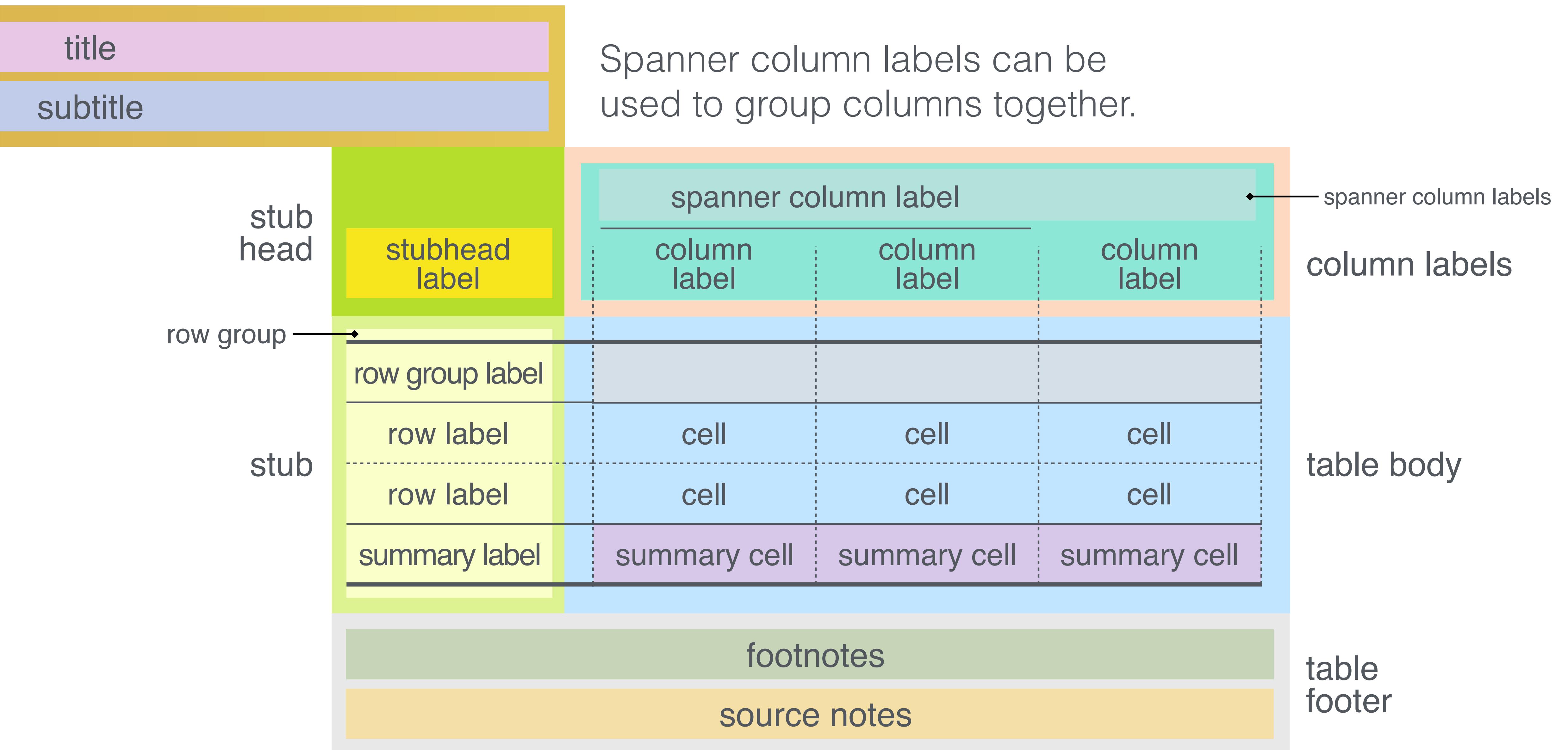
A table header is a great place to add a title and a subtitle.

The Structural Parts of a Table

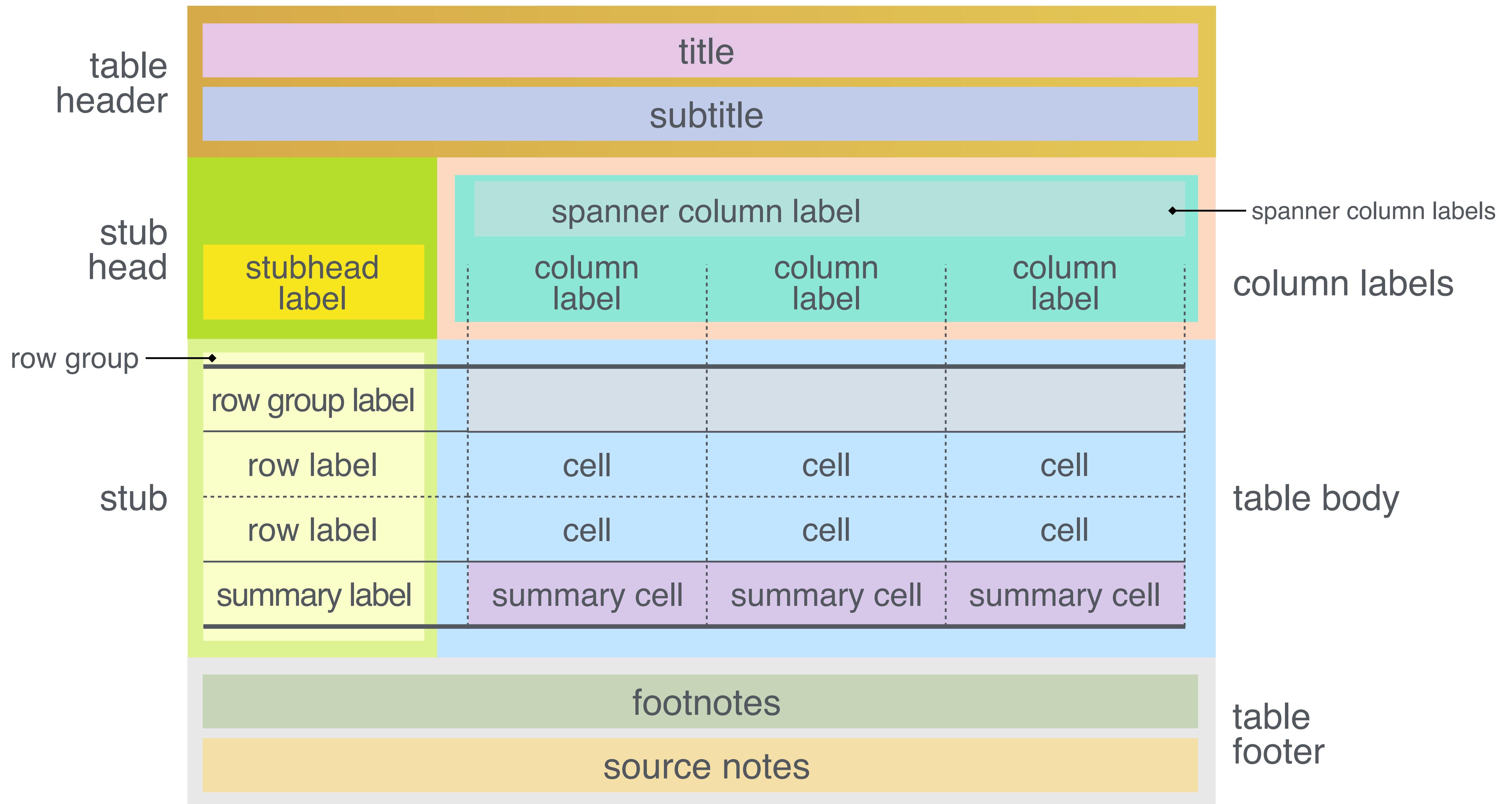


Ordered footnotes and source notes are useful annotations.

The Structural Parts of a Table



The Structural Parts of a Table



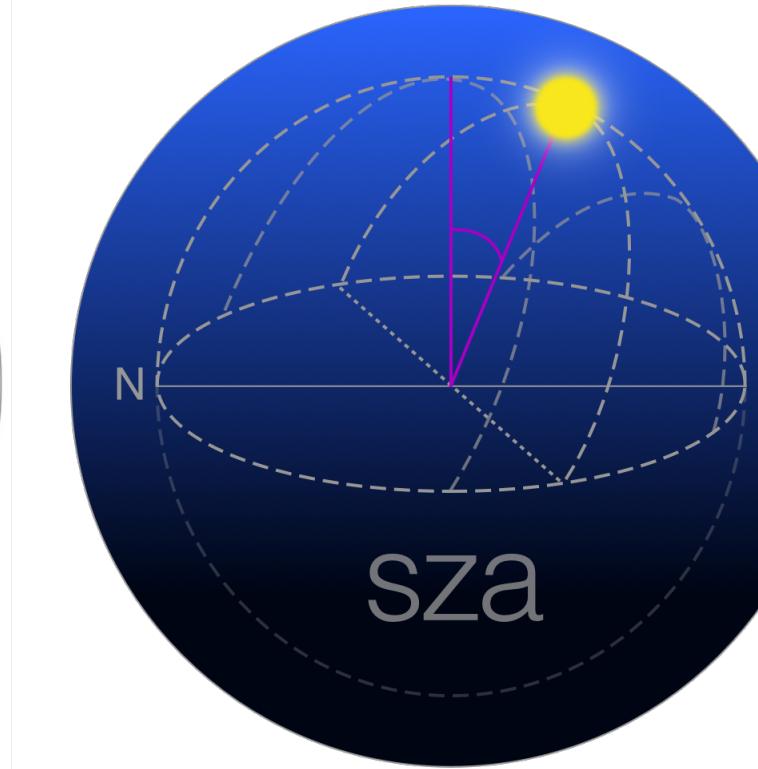
*Let's Learn How to Use **gt***

*Datasets in **gt***

The **gt** package comes with six example datasets.



countrypops



sza



gtcars



sp500



pizzaplace



exibble

*Datasets in **gt***

The **gt** package comes with six example datasets.



Let's take a look at some examples with **exibble**.

The First Function You Need to Know

Create Table

gt()

CODE

```
exibble %>% gt()
```

TABLE

num	char	fctr	date	time	datetime	currency	row	group
1.111e-01	apricot	one	2015-01-15	13:35	2018-01-01 02:22	49.950	row_1	grp_a
2.222e+00	banana	two	2015-02-15	14:40	2018-02-02 14:33	17.950	row_2	grp_a
3.333e+01	coconut	three	2015-03-15	15:45	2018-03-03 03:44	1.390	row_3	grp_a
4.444e+02	durian	four	2015-04-15	16:50	2018-04-04 15:55	65100.000	row_4	grp_a
5.550e+03	NA	five	2015-05-15	17:55	2018-05-05 04:00	1325.810	row_5	grp_b
NA	fig	six	2015-06-15	NA	2018-06-06 16:11	13.255	row_6	grp_b
7.770e+05	grapefruit	seven	NA	19:10	2018-07-07 05:22	NA	row_7	grp_b
8.880e+06	honeydew	eight	2015-08-15	20:20	NA	0.440	row_8	grp_b

Work with Table Components, Add Style

■ Create or Modify Parts

tab_header() tab_spinner() tab_spinner_delim() tab_row_g

CODE

```
exibble %>% gt() %>% tab_header(md("**gt** is cool"))
```

TABLE

gt is cool									
num	char	fctr	date	time	datetime	currency	row	group	
1.111e-01	apricot	one	2015-01-15	13:35	2018-01-01 02:22	49.950	row_1	grp_a	
2.222e+00	banana	two	2015-02-15	14:40	2018-02-02 14:33	17.950	row_2	grp_a	
3.333e+01	coconut	three	2015-03-15	15:45	2018-03-03 03:44	1.390	row_3	grp_a	
4.444e+02	durian	four	2015-04-15	16:50	2018-04-04 15:55	65100.000	row_4	grp_a	
5.550e+03	NA	five	2015-05-15	17:55	2018-05-05 04:00	1325.810	row_5	grp_b	
NA	fig	six	2015-06-15	NA	2018-06-06 16:11	13.255	row_6	grp_b	
7.770e+05	grapefruit	seven	NA	19:10	2018-07-07 05:22	NA	row_7	grp_b	
8.880e+06	honeydew	eight	2015-08-15	20:20	NA	0.440	row_8	grp_b	

Work with Table Components, Add Style

■ Create or Modify Parts

tab_source_note() tab_style() tab_options()

CODE

```
exibble %>% gt() %>%  
  tab_header(md("**gt** is cool")) %>% tab_source_note("From gt.")
```

TABLE

gt is cool								
num	char	fctr	date	time	datetime	currency	row	group
1.111e-01	apricot	one	2015-01-15	13:35	2018-01-01 02:22	49.950	row_1	grp_a
2.222e+00	banana	two	2015-02-15	14:40	2018-02-02 14:33	17.950	row_2	grp_a
3.333e+01	coconut	three	2015-03-15	15:45	2018-03-03 03:44	1.390	row_3	grp_a
4.444e+02	durian	four	2015-04-15	16:50	2018-04-04 15:55	65100.000	row_4	grp_a
5.550e+03	NA	five	2015-05-15	17:55	2018-05-05 04:00	1325.810	row_5	grp_b
NA	fig	six	2015-06-15	NA	2018-06-06 16:11	13.255	row_6	grp_b
7.770e+05	grapefruit	seven	NA	19:10	2018-07-07 05:22	NA	row_7	grp_b
8.880e+06	honeydew	eight	2015-08-15	20:20	NA	0.440	row_8	grp_b

From gt.

The Formatting Functions

Format Data

fmt_number() fmt_scientific() fmt_percent() fmt_currency()

CODE

```
exibble %>% gt() %>% fmt_number(vars(num), decimals = 2)
```

TABLE

num	char	fctr	date	time	datetime	currency	row	group
0.11	apricot	one	2015-01-15	13:35	2018-01-01 02:22	49.950	row_1	grp_a
2.22	banana	two	2015-02-15	14:40	2018-02-02 14:33	17.950	row_2	grp_a
33.33	coconut	three	2015-03-15	15:45	2018-03-03 03:44	1.390	row_3	grp_a
444.40	durian	four	2015-04-15	16:50	2018-04-04 15:55	65100.000	row_4	grp_a
5,550.00	NA	five	2015-05-15	17:55	2018-05-05 04:00	1325.810	row_5	grp_b
NA	fig	six	2015-06-15	NA	2018-06-06 16:11	13.255	row_6	grp_b
777,000.00	grapefruit	seven	NA	19:10	2018-07-07 05:22	NA	row_7	grp_b
8,880,000.00	honeydew	eight	2015-08-15	20:20	NA	0.440	row_8	grp_b

The Formatting Functions

Format Data

fmt_scientific() fmt_percent() fmt_currency() fmt_date()

CODE

```
exibble %>% gt() %>% fmt_scientific(vars(num))
```

TABLE

num	char	fctr	date	time	datetime	currency	row	group
1.11×10^{-1}	apricot	one	2015-01-15	13:35	2018-01-01 02:22	49.950	row_1	grp_a
2.22	banana	two	2015-02-15	14:40	2018-02-02 14:33	17.950	row_2	grp_a
3.33×10^1	coconut	three	2015-03-15	15:45	2018-03-03 03:44	1.390	row_3	grp_a
4.44×10^2	durian	four	2015-04-15	16:50	2018-04-04 15:55	65100.000	row_4	grp_a
5.55×10^3	NA	five	2015-05-15	17:55	2018-05-05 04:00	1325.810	row_5	grp_b
NA	fig	six	2015-06-15	NA	2018-06-06 16:11	13.255	row_6	grp_b
7.77×10^5	grapefruit	seven	NA	19:10	2018-07-07 05:22	NA	row_7	grp_b
8.88×10^6	honeydew	eight	2015-08-15	20:20	NA	0.440	row_8	grp_b

The Formatting Functions

Format Data

fmt_currency() fmt_date() fmt_time() fmt_datetime() fmt

CODE

```
exibble %>% gt() %>% fmt_currency(vars(currency), currency = "EUR")
```

TABLE

num	char	fctr	date	time	datetime	currency	row	group
1.111e-01	apricot	one	2015-01-15	13:35	2018-01-01 02:22	€49.95	row_1	grp_a
2.222e+00	banana	two	2015-02-15	14:40	2018-02-02 14:33	€17.95	row_2	grp_a
3.333e+01	coconut	three	2015-03-15	15:45	2018-03-03 03:44	€1.39	row_3	grp_a
4.444e+02	durian	four	2015-04-15	16:50	2018-04-04 15:55	€65,100.00	row_4	grp_a
5.550e+03	NA	five	2015-05-15	17:55	2018-05-05 04:00	€1,325.81	row_5	grp_b
NA	fig	six	2015-06-15	NA	2018-06-06 16:11	€13.26	row_6	grp_b
7.770e+05	grapefruit	seven	NA	19:10	2018-07-07 05:22	NA	row_7	grp_b
8.880e+06	honeydew	eight	2015-08-15	20:20	NA	€0.44	row_8	grp_b

The Formatting Functions

Format Data

fmt_date() fmt_time() fmt_datetime() fmt_markdown() fmt

CODE

```
exibble %>% gt() %>% fmt_date(vars(date), date_style = 2)
```

try info_date_style()

TABLE

num	char	fctr	date	time	datetime	currency	row	group
1.111e-01	apricot	one	Thursday, January 15, 2015	13:35	2018-01-01 02:22	49.950	row_1	grp_a
2.222e+00	banana	two	Sunday, February 15, 2015	14:40	2018-02-02 14:33	17.950	row_2	grp_a
3.333e+01	coconut	three	Sunday, March 15, 2015	15:45	2018-03-03 03:44	1.390	row_3	grp_a
4.444e+02	durian	four	Wednesday, April 15, 2015	16:50	2018-04-04 15:55	65100.000	row_4	grp_a
5.550e+03	NA	five	Friday, May 15, 2015	17:55	2018-05-05 04:00	1325.810	row_5	grp_b
NA	fig	six	Monday, June 15, 2015	NA	2018-06-06 16:11	13.255	row_6	grp_b
7.770e+05	grapefruit	seven	NA	19:10	2018-07-07 05:22	NA	row_7	grp_b
8.880e+06	honeydew	eight	Saturday, August 15, 2015	20:20	NA	0.440	row_8	grp_b

The Formatting Functions

Format Data

fmt_missing() fmt() text_transform() data_color()

CODE

```
exibble %>% gt() %>% fmt_missing(columns = everything())
```

TABLE

num	char	fctr	date	time	datetime	currency	row	group
1.111e-01	apricot	one	2015-01-15	13:35	2018-01-01 02:22	49.950	row_1	grp_a
2.222e+00	banana	two	2015-02-15	14:40	2018-02-02 14:33	17.950	row_2	grp_a
3.333e+01	coconut	three	2015-03-15	15:45	2018-03-03 03:44	1.390	row_3	grp_a
4.444e+02	durian	four	2015-04-15	16:50	2018-04-04 15:55	65100.000	row_4	grp_a
5.550e+03	—	five	2015-05-15	17:55	2018-05-05 04:00	1325.810	row_5	grp_b
—	fig	six	2015-06-15	—	2018-06-06 16:11	13.255	row_6	grp_b
7.770e+05	grapefruit	seven	—	19:10	2018-07-07 05:22	—	row_7	grp_b
8.880e+06	honeydew	eight	2015-08-15	20:20	—	0.440	row_8	grp_b

How to Do Modifications on Entire Columns

■ Modify Columns

cols_align() cols_width() cols_label() cols_move_to_start

CODE

```
exibble %>% gt() %>% cols_align(vars(char, fctr), align = "right")
```

TABLE

num	char	fctr	date	time	datetime	currency	row	group
1.111e-01	apricot	one	2015-01-15	13:35	2018-01-01 02:22	49.950	row_1	grp_a
2.222e+00	banana	two	2015-02-15	14:40	2018-02-02 14:33	17.950	row_2	grp_a
3.333e+01	coconut	three	2015-03-15	15:45	2018-03-03 03:44	1.390	row_3	grp_a
4.444e+02	durian	four	2015-04-15	16:50	2018-04-04 15:55	65100.000	row_4	grp_a
5.550e+03	NA	five	2015-05-15	17:55	2018-05-05 04:00	1325.810	row_5	grp_b
NA	fig	six	2015-06-15	NA	2018-06-06 16:11	13.255	row_6	grp_b
7.770e+05	grapefruit	seven	NA	19:10	2018-07-07 05:22	NA	row_7	grp_b
8.880e+06	honeydew	eight	2015-08-15	20:20	NA	0.440	row_8	grp_b

How to Do Modifications on Entire Columns

■ Modify Columns

cols_hide() cols_merge_range() cols_merge_uncert() cols_m

CODE

```
exibble %>% gt() %>% cols_hide(matches("date|time"))
```

TABLE

num	char	fctr	currency	row	group
1.111e-01	apricot	one	49.950	row_1	grp_a
2.222e+00	banana	two	17.950	row_2	grp_a
3.333e+01	coconut	three	1.390	row_3	grp_a
4.444e+02	durian	four	65100.000	row_4	grp_a
5.550e+03	NA	five	1325.810	row_5	grp_b
NA	fig	six	13.255	row_6	grp_b
7.770e+05	grapefruit	seven	NA	row_7	grp_b
8.880e+06	honeydew	eight	0.440	row_8	grp_b

How to Do Modifications on Entire Columns

■ Modify Columns

cols_merge()

CODE

```
exibble %>% gt() %>%
  cols_merge(columns = vars(char, fctr), pattern = "{1} ({2})")
```

TABLE

num	char	date	time	datetime	currency	row	group
1.111e-01	apricot (one)	2015-01-15	13:35	2018-01-01 02:22	49.950	row_1	grp_a
2.222e+00	banana (two)	2015-02-15	14:40	2018-02-02 14:33	17.950	row_2	grp_a
3.333e+01	coconut (three)	2015-03-15	15:45	2018-03-03 03:44	1.390	row_3	grp_a
4.444e+02	durian (four)	2015-04-15	16:50	2018-04-04 15:55	65100.000	row_4	grp_a
5.550e+03	NA (five)	2015-05-15	17:55	2018-05-05 04:00	1325.810	row_5	grp_b
NA	fig (six)	2015-06-15	NA	2018-06-06 16:11	13.255	row_6	grp_b
7.770e+05	grapefruit (seven)	NA	19:10	2018-07-07 05:22	NA	row_7	grp_b
8.880e+06	honeydew (eight)	2015-08-15	20:20	NA	0.440	row_8	grp_b

More Functions

- █ Create Table
- █ Create or Modify Parts
- █ Format Data
- █ Modify Columns
- █ Modify Rows
- █ Add Rows
- █ Helper Functions
- █ Image Addition Functions
- █ Table Option Functions
- █ Information Functions
- █ Datasets
- █ Shiny Functions
- █ Export Functions

There is a lot of useful information about each function
in **gt**'s *Function Reference* section

[gt.rstudio.com/reference](https://rstudio.github.io/gt/reference/)

You can try out lots of **gt** examples in RStudio Cloud

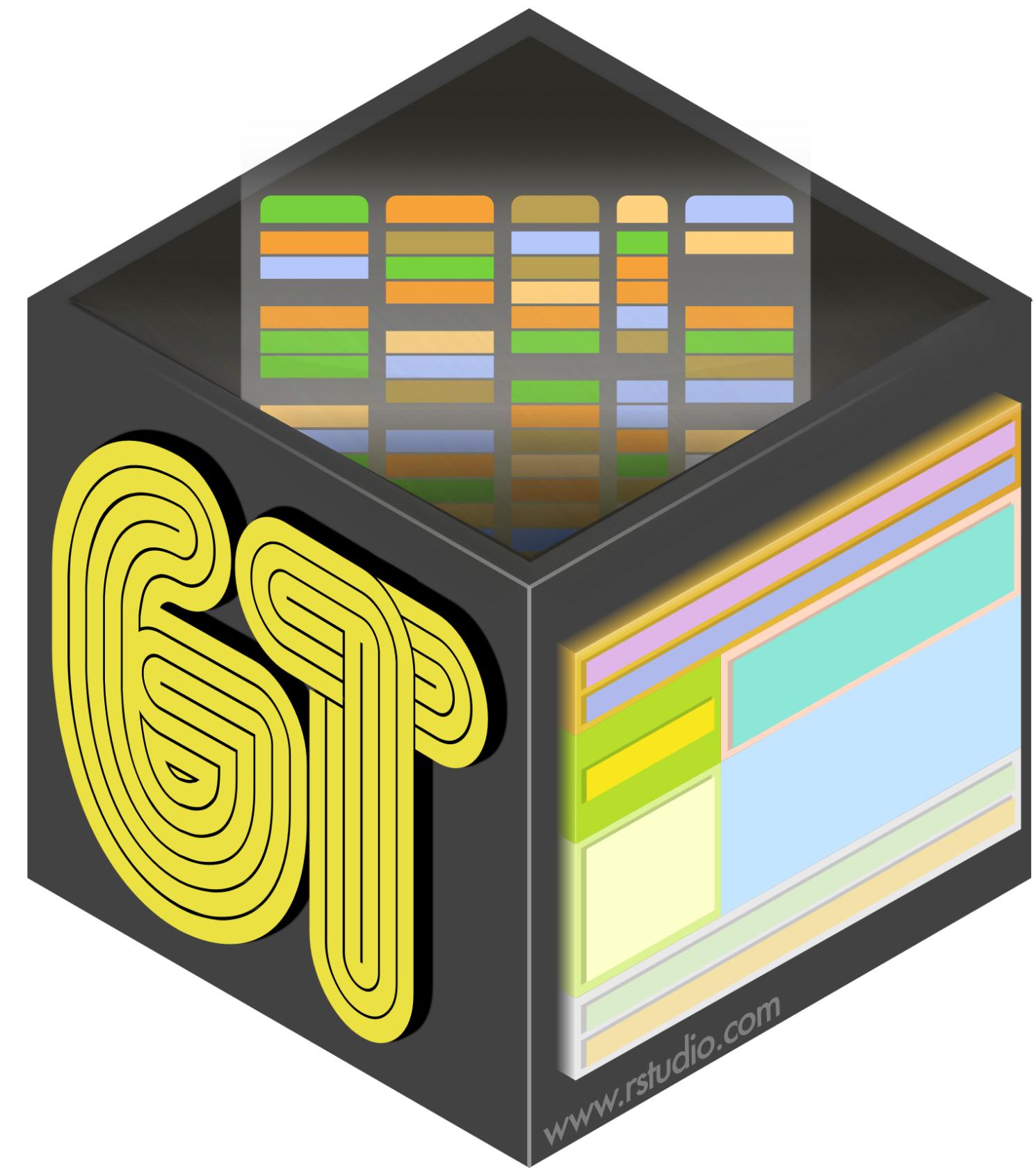


The link is available in the package README

github.com/rstudio/gt

Demo

Making Tables With the **gt** Package



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github.com/rstudio/gt