

# Tables and Fonts

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*Week 7, Class 2*



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# Agenda

- Tables with `gt`
- Fonts with `showtext` and/or `extrafont`

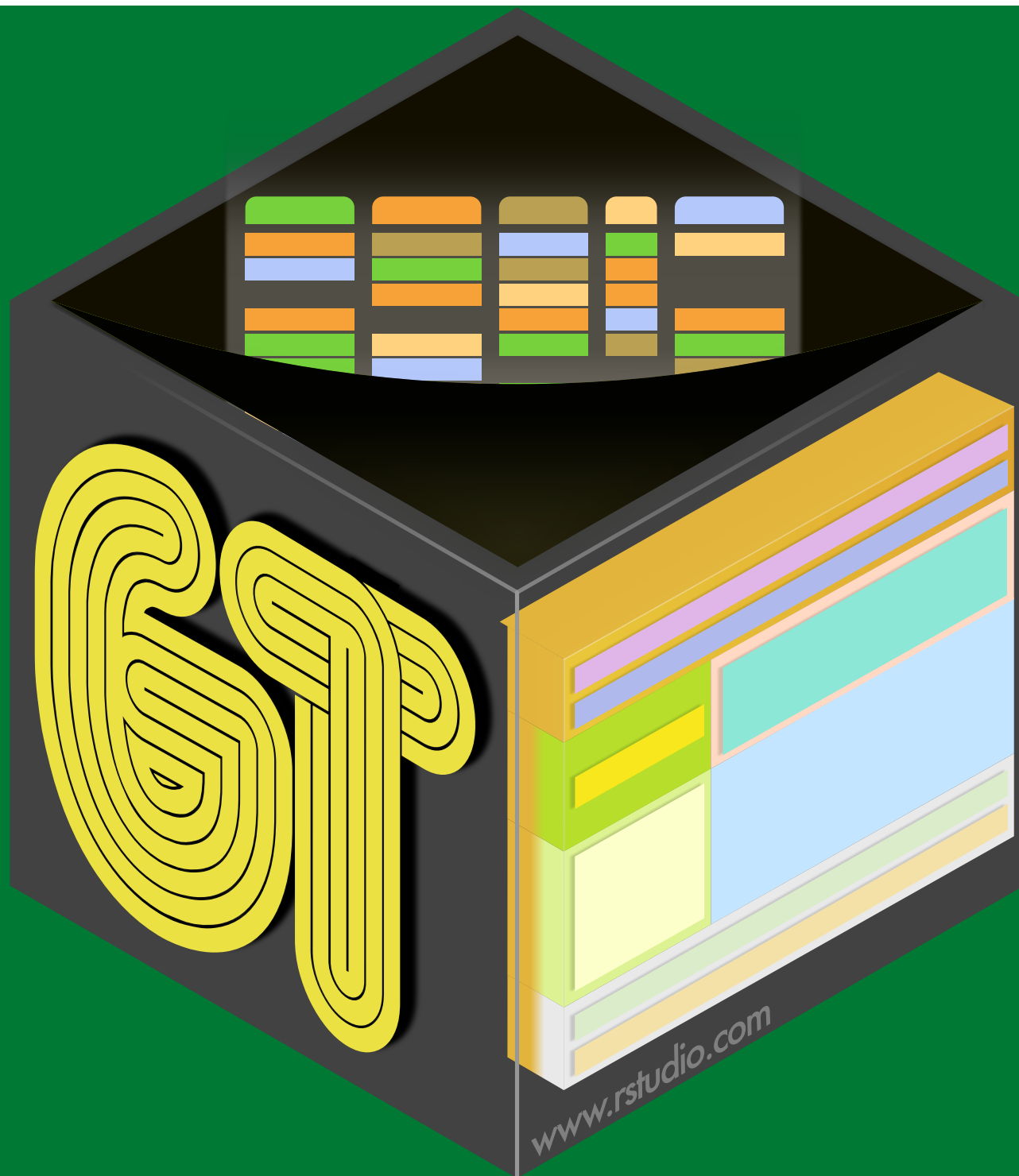
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# Agenda

- Tables with `gt`
- Fonts with `showtext` and/or `extrafont`

## *Learning objectives*

- Be comfortable with the basics of `gt`
  - create a table
  - format columns
  - create spanner heads
  - etc.
- Understand how to use additional fonts (if you so choose)



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# Overview

- New package (still very actively under development) by RStudio
- Really promising
  - Pipe-oriented
  - Beautiful tables easy
  - Spanner heads/grouping used to be a total pain - not so anymore
  - Renders to HTML/PDF without even thinking about it
- Has a few limitations relative to {papaja}
- May run into bumps because of the active development

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# Install

```
remotes::install_github("rstudio/gt")
```

# The hard part

- Getting your data in the format you want a table in
- Utilize your `gather/spread` skills regularly

```
library(fivethirtyeight)
flying
```

```
## # A tibble: 1,040 x 27
##   respondent_id gender age   height children_under_18 household_income
##           <dbl> <chr> <ord> <ord>   <lgl>                <ord>
## 1     3436139758 <NA>   <NA>   <NA>    NA                <NA>
## 2     3434278696 Male    30-44 "6'3\... TRUE             <NA>
## 3     3434275578 Male    30-44 "5'8\... FALSE          $100,000 - $149...
## 4     3434268208 Male    30-44 "5'11... FALSE          $0 - $24,999
## 5     3434250245 Male    30-44 "5'7\... FALSE          $50,000 - $99,9...
## 6     3434245875 Male    30-44 "5'9\... TRUE           $25,000 - $49,9...
## 7     3434235351 Male    30-44 "6'2\... TRUE           <NA>
## 8     3434218031 Male    30-44 "6'0\... TRUE           $0 - $24,999
## 9     3434213681 <NA>   <NA>   "6'0\... TRUE           <NA>
## 10    3434172894 Male    30-44 "5'6\... FALSE          $0 - $24,999
## # ... with 1,030 more rows, and 21 more variables: education <ord>,
## #   location <chr>, frequency <ord>, recline_frequency <ord>,
## #   recline_obligation <lgl>, recline_rude <ord>, recline_eliminate <lgl>," 6 / 31
```

```
smry <- flying %>%
  count(gender, age, recline_frequency) %>%
  filter(!is.na(age),
         !is.na(recline_frequency)) %>%
  spread(age, n)
```

```
smry
```

```
## # A tibble: 10 x 6
##   gender recline_frequency `18-29` `30-44` `45-60` `> 60`
##   <chr>   <ord>           <int>   <int>   <int>   <int>
## 1 Female Never           24      21      19      23
## 2 Female Once in a while  36      25      30      36
## 3 Female About half the time 10      22      18      17
## 4 Female Usually        13      22      26      28
## 5 Female Always         10      21      29      12
## 6 Male   Never           24      17      20      18
## 7 Male   Once in a while  19      39      40      29
## 8 Male   About half the time 11      11      16      11
## 9 Male   Usually         14      30      15      27
## 10 Male  Always          11      14      21      14
```



# Turn into table

## *Disclaimer*

These all look slightly different on the slides

```
library(gt)
smry %>%
  gt()
```

gender	recline_frequency	18- 29	30- 44	45- 60	> 60
Female	Never	24	21	19	23
Female	Once in a while	36	25	30	36
Female	About half the time	10	22	18	17
Female	Usually	13	22	26	28
Female	Always	10	21	29	12
Male	Never	24	17	20	18
Male	Once in a while	19	39	40	29
Male	About half the time	11	11	16	11
Male	Usually	14	30	15	27
Male	Always	11	14	21	14

# Add gender as a grouping variable

```
smry %>%  
  group_by(gender) %>%  
  gt()
```

recline_frequency	18-29	30-44	45-60	> 60
Female				
Never	24	21	19	23
Once in a while	36	25	30	36
About half the time	10	22	18	17
Usually	13	22	26	28
Always	10	21	29	12
Male				
Never	24	17	20	18
Once in a while	19	39	40	29
About half the time	11	11	16	11
Usually	14	30	15	27
Always	11	14	21	14

---

# Add a spanner head

```
smry %>%  
  group_by(gender) %>%  
  gt() %>%  
  tab_spanner(label = "Age Range",  
              columns = vars(`18-29`, `30-44`, `45-60`, `> 60`))
```

recline_frequency	Age Range			
	18-29	30-44	45-60	> 60
Female				
Never	24	21	19	23
Once in a while	36	25	30	36
About half the time	10	22	18	17
Usually	13	22	26	28
Always	10	21	29	12
Male				
Never	24	17	20	18
Once in a while	19	39	40	29
About half the time	11	11	16	11
Usually	14	30	15	27
Always	11	14	21	14

---

# Change column names

```
smry %>%  
  group_by(gender) %>%  
  gt() %>%  
  tab_spanner(label = "Age Range",  
              columns = vars(`18-29`, `30-44`, `45-60`, `> 60`)) %>%  
  cols_label(recline_frequency = "Recline")
```

Recline	Age Range			
	18-29	30-44	45-60	> 60
Female				
Never	24	21	19	23
Once in a while	36	25	30	36
About half the time	10	22	18	17
Usually	13	22	26	28
Always	10	21	29	12
Male				
Never	24	17	20	18
Once in a while	19	39	40	29
About half the time	11	11	16	11
Usually	14	30	15	27
Always	11	14	21	14

---

# Align columns

```
smry %>%  
  group_by(gender) %>%  
  gt() %>%  
  tab_spanner(label = "Age Range",  
              columns = vars(`18-29`, `30-44`, `45-60`, `> 60`)) %>%  
  cols_label(recline_frequency = "Recline") %>%  
  cols_align(align = "left", columns = vars(recline_frequency))
```

Recline	Age Range			
	18-29	30-44	45-60	> 60
Female				
Never	24	21	19	23
Once in a while	36	25	30	36
About half the time	10	22	18	17
Usually	13	22	26	28
Always	10	21	29	12
Male				
Never	24	17	20	18
Once in a while	19	39	40	29
About half the time	11	11	16	11
Usually	14	30	15	27
Always	11	14	21	14



---

# Add a title

```
smry %>%  
  group_by(gender) %>%  
  gt() %>%  
  tab_spanner(label = "Age Range",  
              columns = vars(`18-29`, `30-44`, `45-60`, `> 60`)) %>%  
  cols_label(recline_frequency = "Recline") %>%  
  cols_align(align = "left", columns = vars(recline_frequency)) %>%  
  tab_header(title = "Airline Passengers",  
            subtitle = "Leg space is limited, what do you do?")
```

Airline Passengers				
Leg space is limited, what do you do?				
Recline	Age Range			
	18-29	30-44	45-60	> 60
Female				
Never	24	21	19	23
Once in a while	36	25	30	36
About half the time	10	22	18	17
Usually	13	22	26	28
Always	10	21	29	12
Male				
Never	24	17	20	18
Once in a while	19	39	40	29
About half the time	11	11	16	11
Usually	14	30	15	27
Always	11	14	21	14

# Format columns

```
smry %>%  
  mutate_at(vars(`18-29`, `30-44`, `45-60`, `> 60`), ~./100) %>%  
  group_by(gender) %>%  
  gt() %>%  
  tab_spanner(label = "Age Range",  
              columns = vars(`18-29`, `30-44`, `45-60`, `> 60`)) %>%  
  fmt_percent(vars(`18-29`, `30-44`, `45-60`, `> 60`),  
              decimals = 0) %>%  
  cols_label(recline_frequency = "Recline") %>%  
  cols_align(align = "left", columns = vars(recline_frequency)) %>%  
  tab_header(title = "Airline Passengers",  
            subtitle = "Leg space is limited, what do you do?")
```

Airline Passengers				
Leg space is limited, what do you do?				
Recline	Age Range			
	18-29	30-44	45-60	> 60
Female				
Never	24%	21%	19%	23%
Once in a while	36%	25%	30%	36%
About half the time	10%	22%	18%	17%
Usually	13%	22%	26%	28%
Always	10%	21%	29%	12%
Male				
Never	24%	17%	20%	18%
Once in a while	19%	39%	40%	29%
About half the time	11%	11%	16%	11%
Usually	14%	30%	15%	27%
Always	11%	14%	21%	14%

# Add a source note

```
smry %>%
  mutate_at(vars(`18-29`, `30-44`, `45-60`, `> 60`), ~./100) %>%
  group_by(gender) %>%
  gt() %>%
  tab_spanner(label = "Age Range",
              columns = vars(`18-29`, `30-44`, `45-60`, `> 60`)) %>%
  fmt_percent(vars(`18-29`, `30-44`, `45-60`, `> 60`),
              decimals = 0) %>%
  cols_label(recline_frequency = "Recline") %>%
  cols_align(aligned = "left", columns = vars(recline_frequency)) %>%
  tab_header(title = "Airline Passengers",
             subtitle = "Leg space is limited, what do you do?") %>%
  tab_source_note(source_note = md("Data from [fivethirtyeight](https://five
```

Airline Passengers				
Leg space is limited, what do you do?				
Recline	Age Range			
	18-29	30-44	45-60	> 60
Female				
Never	24%	21%	19%	23%
Once in a while	36%	25%	30%	36%
About half the time	10%	22%	18%	17%
Usually	13%	22%	26%	28%
Always	10%	21%	29%	12%
Male				
Never	24%	17%	20%	18%
Once in a while	19%	39%	40%	29%
About half the time	11%	11%	16%	11%
Usually	14%	30%	15%	27%
Always	11%	14%	21%	14%
Data from <a href="#">fivethirtyeight</a>				

# Color cells

```
smry %>%
  mutate_at(vars(`18-29`, `30-44`, `45-60`, `> 60`), ~./100) %>%
  group_by(gender) %>%
  gt() %>%
  tab_spanner(label = "Age Range",
              columns = vars(`18-29`, `30-44`, `45-60`, `> 60`)) %>%
  fmt_percent(vars(`18-29`, `30-44`, `45-60`, `> 60`),
              decimals = 0) %>%
  cols_label(recline_frequency = "Recline") %>%
  data_color(vars(`18-29`, `30-44`, `45-60`, `> 60`),
            colors = scales::col_numeric(palette = c(c("#FFFFFF", "#FF0000")
  cols_align(align = "left", columns = vars(recline_frequency)) %>%
  tab_header(title = "Airline Passengers",
            subtitle = "Leg space is limited, what do you do?") %>%
  tab_source_note(source_note = md("Data from [fivethirtyeight](https://five
```

Airline Passengers				
Leg space is limited, what do you do?				
Recline	Age Range			
	18-29	30-44	45-60	> 60
Female				
Never	24%	21%	19%	23%
Once in a while	36%	25%	30%	36%
About half the time	10%	22%	18%	17%
Usually	13%	22%	26%	28%
Always	10%	21%	29%	12%
Male				
Never	24%	17%	20%	18%
Once in a while	19%	39%	40%	29%
About half the time	11%	11%	16%	11%
Usually	14%	30%	15%	27%
Always	11%	14%	21%	14%
Data from <a href="#">fivethirtyeight</a>				



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# What else?

- Lots more it can do, and lots more in development
- See the [website](#)

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# What else?

- Lots more it can do, and lots more in development
- See the [website](#)
- gtcars case study is worth going through



# Fonts

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# General advice

- Use different fonts to distinguish things - specifically code
- **Always** choose a sans-serif font for code
- Explore and try - it makes a big impact on the overall look/feel (bigger than you may expect if you haven't played with fonts much before)
- Try not to get sucked into too deep of a rabbit hole

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# Google fonts

<https://fonts.google.com>

- Open source, designed for the web
- Good place to explore fonts
- Can be incorporated via the `{showtext}` package!

# {showtext} example

```
devtools::install_github("yixuan/showtext")

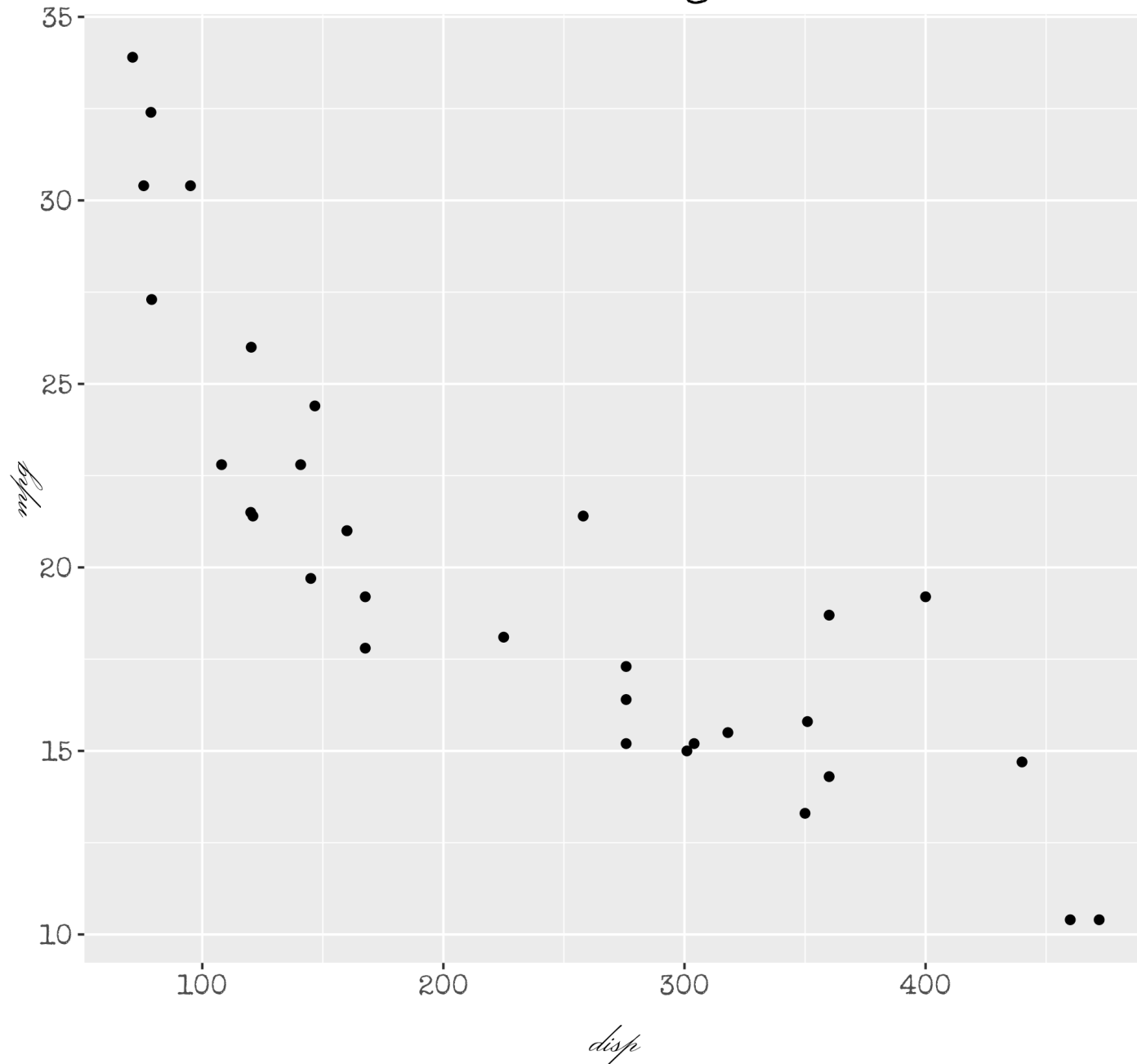
library(showtext)

font_add_google('Monsieur La Doulaise', "mld")
font_add_google('Special Elite', "se")

showtext_auto()
quartz()

ggplot(mtcars, aes(displacement, mpg)) +
  geom_point() +
  labs(title = "An amazing title",
       subtitle = "with the world's most boring dataset") +
  theme(plot.subtitle = element_text(size = 18, family = "se"),
        plot.title = element_text(size = 22, family = "mld"),
        axis.title = element_text(size = 18, family = "mld"),
        axis.text.x = element_text(size = 12, family = "se"),
        axis.text.y = element_text(size = 12, family = "se"))
```

*An amazing title*  
with the world's most boring dataset



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# extrafont

- Primary downside - you have to have the fonts installed on your computer
- Look at the install documentation - it's pretty good and fairly comprehensive



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# extrafont

- Primary downside - you have to have the fonts installed on your computer
- Look at the install documentation - it's pretty good and fairly comprehensive

```
library(extrafont)
ggplot(mtcars, aes(x=wt, y=mpg)) + geom_point() +
  ggtitle("Fuel Efficiency of 32 Cars") +
  xlab("Weight (x1000 lb)") + ylab("Miles per Gallon") +
  theme_bw() +
  theme(text=element_text(family="Garamond", size=14))
```

