

# Presentations

And working with xaringan and xaringantheme

June 22nd, 2023

# Every presentation is an act of interactive storytelling

Every presentation is a **story**

**You** must first be intrinsically **excited to share it**

Your **audience** then sets the **wider context** for the storytelling

Their level of technicality determines the **assumed knowledge** for your talk

We want our presentations to be **impactful, engaging, and memorable**

# Always begin with background and motivation

What is the **motivation** for the underlying problem?

**Why should people care** about your work?

You **want to build up** to what problem your work is trying to address

**Example** nflWAR talk from 2017:

- Do **NOT** begin with: "We're introducing WAR for NFL!"
- Instead begin with
  - ▮ current state of NFL analytics and need for better, reproducible player level-metrics

There is often **NO need** for **outline slide**

# Then move onto describing the data

You want to **first provide** a **general overview** of your dataset

**Domain knowledge:** source, timeframe, limitations of the dataset

What are your **observations**? i.e., what does each row of your dataset represent?

What are the relevant **variables / features**? i.e., what are the columns of interest?

- Be careful though with many variables - **avoid just listing everything!**
- Simplify by **describing groups** of variables together

**Use examples** - makes your data explicit and concrete for the audience

- But Do **NOT** print out raw R console output!

# Next clearly introduce your hypotheses and methods used

**Prior** to presenting results, you want to **clearly state** any **transformations and methods** used in the analysis

Your presentation should provide the **general steps** for someone to **reproduce your work**

- e.g., Used complete-linkage hierarchical clustering with [INSERT VARIABLES], determined  $K$  number of clusters by [INSERT REASON]
- e.g., Modeled [INSERT RESPONSE VARIABLE] as a function of [INSERT EXPLANATORY VARIABLES]

For more complicated methods, you'll want to provide a brief review of the methodology

**Always justify** your choice of methodology, e.g., random forest over linear regression?

# Use the assertion-evidence model to present results

**Assertion:** title of the slide should be the key takeaway in brief sentence form

Indicates the point of the visualization or whatever means used to display the results

**Evidence:** the body of the slide containing the results

Display of the results in some format that is simple to explain and understand

Limit the amount of text in your **Evidence** portion - brief statements with important context

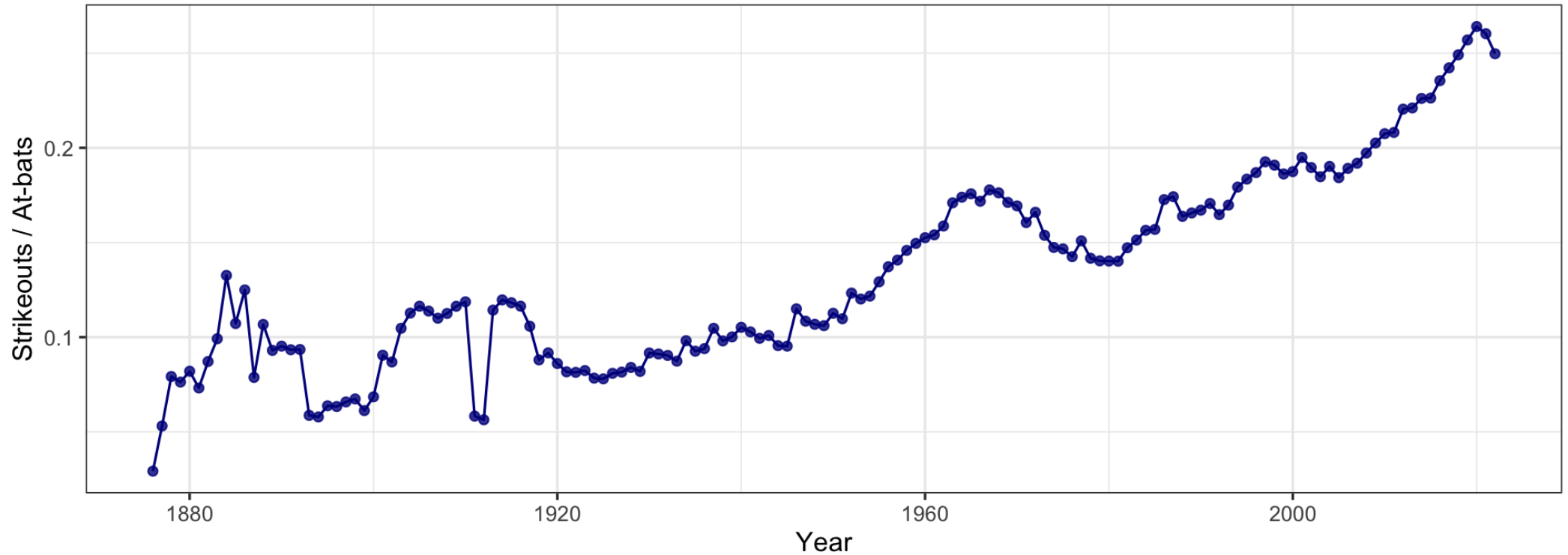
Treat the **Assertion** as the title of your **Evidence**

- Plot titles are then redundant and not necessary with an effective assertion

First comes the bold assertion in the title

and then the **evidence** here

# MLB strikeout rates have been increasing throughout MLB's history



Data courtesy of Lahman

(Explain the aes of your graph - what is each axis, color, shape, etc referring to? And what is the unit scale?)



# End gracefully with a recap and future directions

Tell em', Tell em' again, Tell em' what you told em'

Conclude with a **recap** of the **main points** of your work

Then **point out limitations** and indicate a **direction for the next steps**

Either end with the **Discussion** slide (or **Acknowledgements** but this is sometimes placed at the beginning)

# Some additional notes on concluding presentations

Never end a presentation with **lone** *Thank you* slide!

Want the audience to focus on the final points in your **Discussion** slide

Include back-up **Appendix** slides with additional info, ready for questions

Slides for **References** should not be displayed **at-length** during your talk

- Their purpose is just for sharing with others
- Alternative option: include references directly on slides either in text or via footnotes<sup>1</sup>

[1] Like this...

# Additional tips and reminders

Use **pauses effectively** to highlight points and explain steps

- Showing all of your text at once can overwhelm your audience

But don't be ridiculous

- Do **NOT** introduce too much notation at once
- **Repetitive language and usage of words are useful and reminders for the audience**
  - Use consistent language and terminology throughout the talk

**Know your audience!**



How do we make presentations?

# Use xaringan to create reproducible technical presentations

What's the **big idea** behind the `xaringan` R package?

Ideally want to do this **on the web**, i.e., use `remark.js`

**Problem...** we **don't know Javascript**, but we **know rmarkdown**.

Enter `xaringan`, an **rmarkdown wrapper** for `remark.js`. **Problem solved!**

**Google Slides**, and **Keynote** are *also* great, depending on your **purpose**

# Use `xaringan` and `xaringantheme`

Install both packages: `xaringan` and `xaringantheme`

- Create a new presentation using a **template**
- View in-progress slides with the **Infinite Moon Reader** addin for RStudio
- More options with `xaringanExtra`!

Check out public resources:

- Check out [Alison Hill's Meet xaringan](#) presentation
- [Chapter 7](#) of free online rmarkdown book by its author [Yihui Xie](#)
- The rest of these slides are taken from the `xaringantheme` template in RStudio
- And google for more [examples](#)

# Typography

Text can be **bold**, *italic*, ~~strikethrough~~, or inline code.

[Link to another slide.](#)

## Lorem Ipsum

Dolor imperdiet nostra sapien scelerisque praesent curae metus facilisis dignissim tortor. Lacinia neque mollis nascetur neque urna velit bibendum. Himenaeos suspendisse leo varius mus risus sagittis aliquet venenatis duis nec.

- Dolor cubilia nostra nunc sodales
- Consectetur aliquet mauris blandit
- Ipsum dis nec porttitor urna sed

# Colors

- Text Color
- Header Color
- Link Color
- **Bold Color**
- inline code color



# Big Topic or Inverse Slides #

## Slide Headings # #

### Sub-slide Headings # # #

**Bold Call-Out #####**

This is a normal paragraph text. Only use header levels 1-4.

**Possible, but not recommended #####**

**Definitely don't use h6 #####**

# Topic Changing Interstitial

`class: inverse center middle`

# Blocks

## Blockquote

This is a blockquote following a header.

When something is important enough, you do it even if the odds are not in your favor.

# Blocks

## Code Blocks

### R Code

```
ggplot(gapminder) +  
  aes(x = gdpPercap, y = lifeExp, size = pop, color = country) +  
  geom_point() +  
  facet_wrap(~year)
```

### JavaScript

```
var fun = function lang(l) {  
  dateFormat.i18n = require('./lang/' + l)  
  return true;  
}
```

# Blocks

## More R Code

```
dplyr::starwars %>% dplyr::slice_sample(n = 4)
```

# Blocks

```
cli::cli_alert_success("It worked!")
```

```
## ✓ It worked!
```

```
message("Just a friendly message")
```

```
## Just a friendly message
```

```
warning("This could be bad...")
```

```
## Warning: This could be bad...
```

```
stop("I hope you're sitting down for this")
```

```
## Error in eval(expr, envir, enclos): I hope you're sitting down for this
```

# Tables

```
tibble::as_tibble(mtcars)
```

```
## # A tibble: 32 × 11
##   mpg   cyl  disp    hp  drat    wt  qsec    vs  am  gear  carb
##   <dbl> <dbl> <dbl> <dbl> <dbl> <dbl> <dbl> <dbl> <dbl> <dbl> <dbl>
## 1  21     6  160   110  3.9    2.62  16.5    0    1     4     4
## 2  21     6  160   110  3.9    2.88  17.0    0    1     4     4
## 3 22.8     4  108    93  3.85    2.32  18.6    1    1     4     1
## 4 21.4     6  258   110  3.08    3.22  19.4    1    0     3     1
## 5 18.7     8  360   175  3.15    3.44  17.0    0    0     3     2
## 6 18.1     6  225   105  2.76    3.46  20.2    1    0     3     1
## 7 14.3     8  360   245  3.21    3.57  15.8    0    0     3     4
## 8 24.4     4  147.    62  3.69    3.19  20      1    0     4     2
## 9 22.8     4  141.    95  3.92    3.15  22.9    1    0     4     2
## 10 19.2     6  168.   123  3.92    3.44  18.3    1    0     4     4
## # ... with 22 more rows
```

# Tables

```
knitr::kable(head(mtcars), format = 'html')
```

|                   | <b>mpg</b> | <b>cyl</b> | <b>disp</b> | <b>hp</b> | <b>drat</b> | <b>wt</b> | <b>qsec</b> | <b>vs</b> | <b>am</b> | <b>gear</b> | <b>carb</b> |
|-------------------|------------|------------|-------------|-----------|-------------|-----------|-------------|-----------|-----------|-------------|-------------|
| Mazda RX4         | 21.0       | 6          | 160         | 110       | 3.90        | 2.620     | 16.46       | 0         | 1         | 4           | 4           |
| Mazda RX4 Wag     | 21.0       | 6          | 160         | 110       | 3.90        | 2.875     | 17.02       | 0         | 1         | 4           | 4           |
| Datsun 710        | 22.8       | 4          | 108         | 93        | 3.85        | 2.320     | 18.61       | 1         | 1         | 4           | 1           |
| Hornet 4 Drive    | 21.4       | 6          | 258         | 110       | 3.08        | 3.215     | 19.44       | 1         | 0         | 3           | 1           |
| Hornet Sportabout | 18.7       | 8          | 360         | 175       | 3.15        | 3.440     | 17.02       | 0         | 0         | 3           | 2           |
| Valiant           | 18.1       | 6          | 225         | 105       | 2.76        | 3.460     | 20.22       | 1         | 0         | 3           | 1           |



# Tables

```
DT::datatable(head(mtcars), fillContainer = FALSE, options = list(pageLength = 4))
```

Show  entries

Search:

|                | mpg  | cyl | disp | hp  | drat | wt    | qsec  | vs | am | gear | carb |
|----------------|------|-----|------|-----|------|-------|-------|----|----|------|------|
| Mazda RX4      | 21   | 6   | 160  | 110 | 3.9  | 2.62  | 16.46 | 0  | 1  | 4    | 4    |
| Mazda RX4 Wag  | 21   | 6   | 160  | 110 | 3.9  | 2.875 | 17.02 | 0  | 1  | 4    | 4    |
| Datsun 710     | 22.8 | 4   | 108  | 93  | 3.85 | 2.32  | 18.61 | 1  | 1  | 4    | 1    |
| Hornet 4 Drive | 21.4 | 6   | 258  | 110 | 3.08 | 3.215 | 19.44 | 1  | 0  | 3    | 1    |

Showing 1 to 4 of 6 entries

Previous  2 Next

# Lists

**Here is an unordered list:**

- Item foo
- Item bar
- Item baz
- Item zip

**And an ordered list:**

1. Item one
2. Item two
3. Item three
4. Item four

# Lists

## And a nested list:

- level 1 item
  - level 2 item
  - level 2 item
  - level 3 item
  - level 3 item
- level 1 item
  - level 2 item
  - level 2 item
  - level 2 item
- level 1 item
  - level 2 item
  - level 2 item
- level 1 item

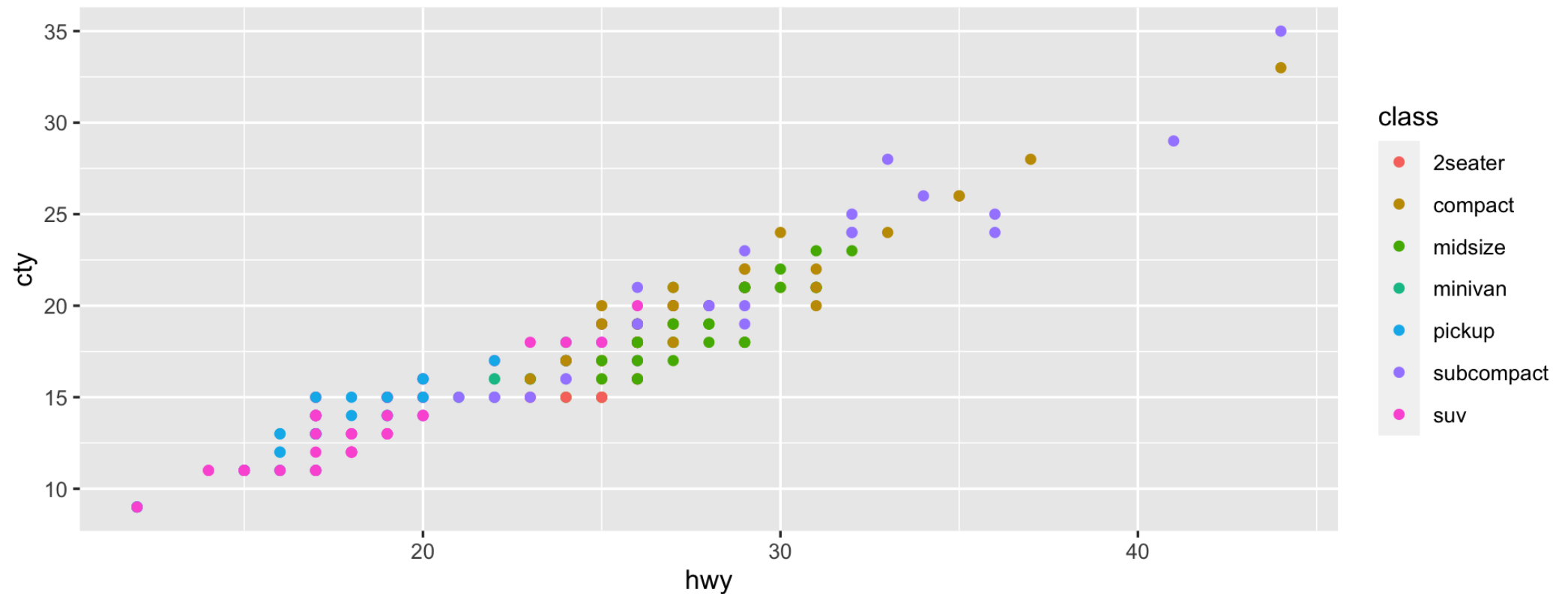
# Lists

## Nesting an ol in ul in an ol

- level 1 item (ul)
  1. level 2 item (ol)
  2. level 2 item (ol)
    - level 3 item (ul)
    - level 3 item (ul)
- level 1 item (ul)
  1. level 2 item (ol)
  2. level 2 item (ol)
    - level 3 item (ul)
    - level 3 item (ul)
  1. level 4 item (ol)
  2. level 4 item (ol)
    - level 3 item (ul)
    - level 3 item (ul)
- level 1 item (ul)

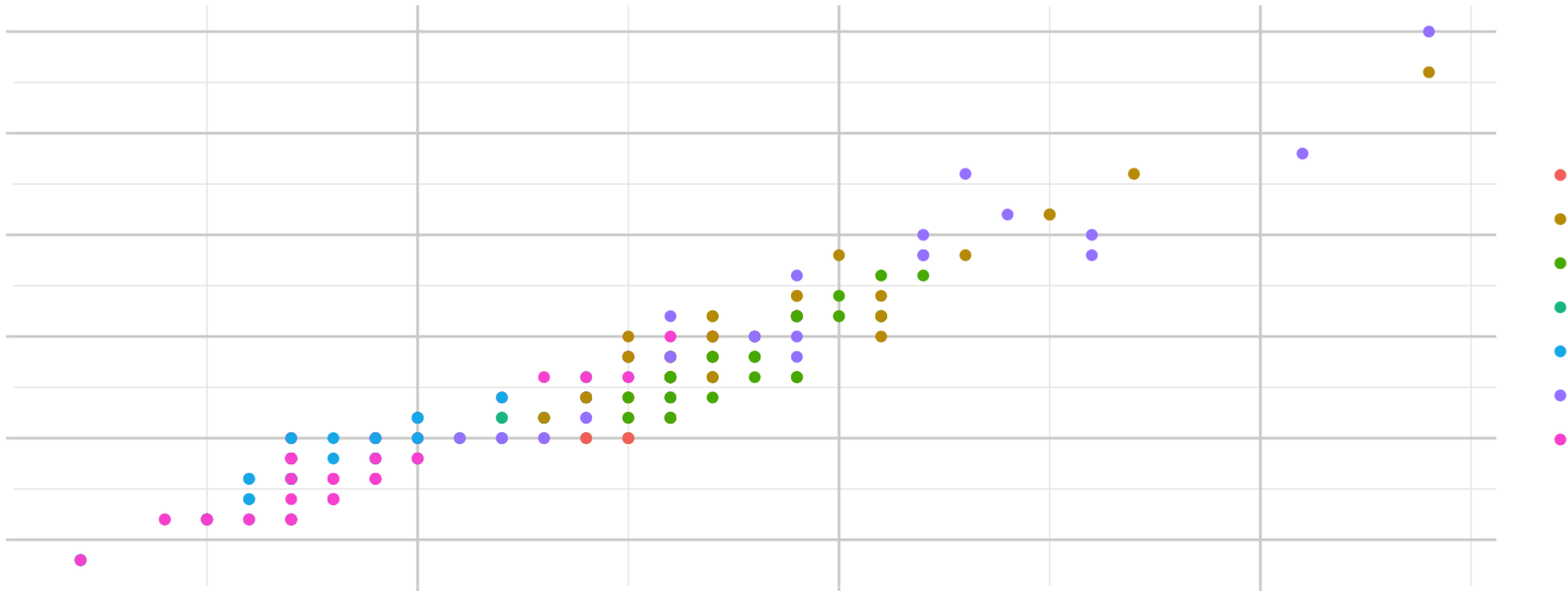
# Plots

```
library(ggplot2)
(g <- ggplot(mpg) + aes(hwy, cty, color = class) + geom_point())
```



# Plots

```
g + xaringantheme::theme_xaringan(text_font_size = 16, title_font_size = 18) +  
  ggtitle("A Plot About Cars")
```



Square image



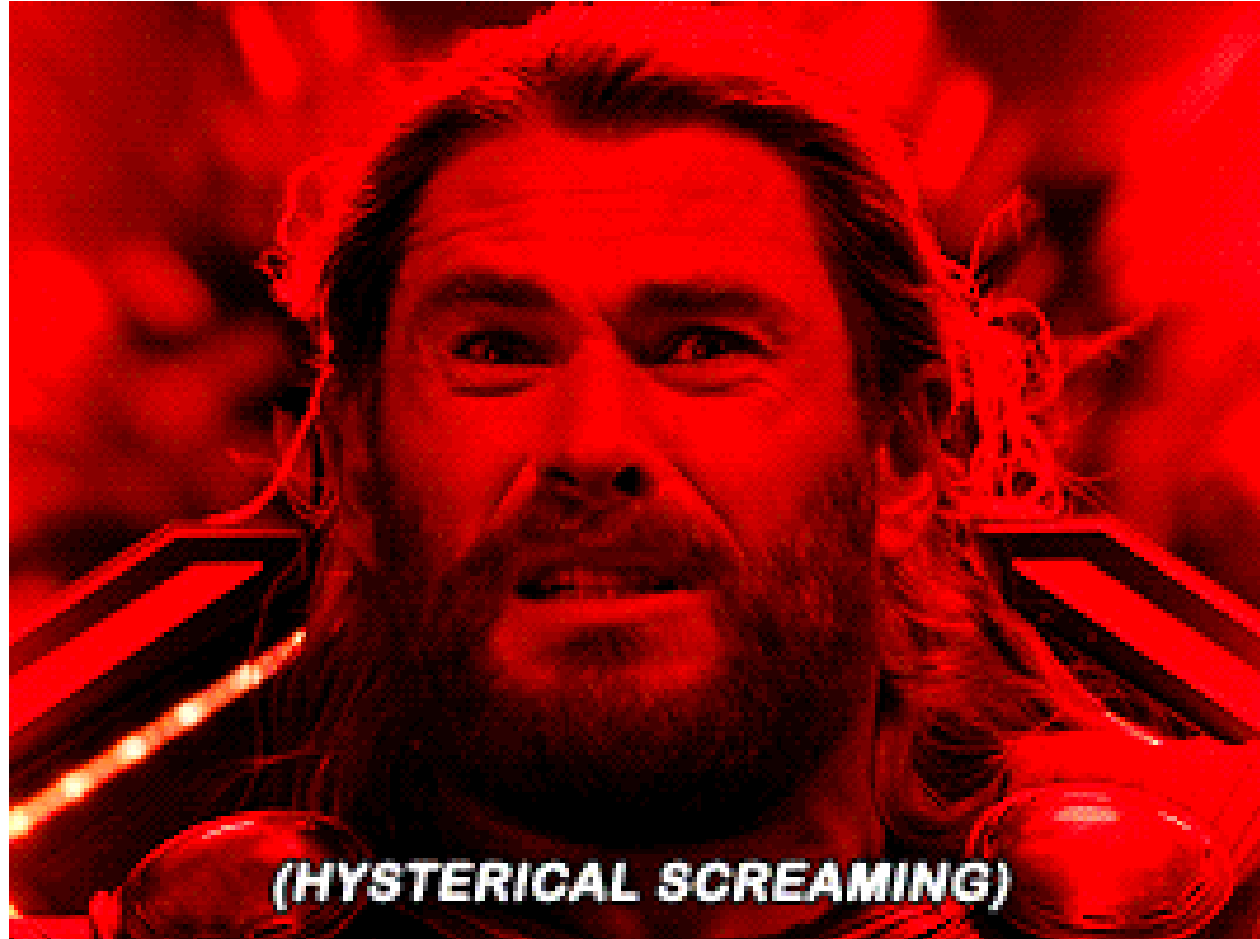
GitHub Octocat

# Two images





Alternatively include\_graphics



Definition lists can be used with HTML syntax.

Name

Godzilla

Born

1952

Birthplace

Japan

Color

Green

**Over to you - any presentation tips we may have missed?**

# Thanks!

Slides created via the R packages:

**xaringan**  
gadenbuie/xaringantheme

The chakra comes from **remark.js**, **knitr**, and **R Markdown**.