




csv,conf,v6

# Revealing Room for Improvement in Accessibility within a Social Media Data Visualization Learning Community

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# Who are we?



**Silvia Canelón**

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# Takeaways

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- Growth in online learning communities for data science
- TidyTuesday: Weekly social project for data visualization in R
- 3% of the data visualizations shared on Twitter had alternative text
- 84% were described by default as "Image"

# Can blind people participate in data viz learning communities?

- Why do blind people need data visualization?
  - Scientific communication
  - Election maps
  - COVID-19 incidence maps & dashboards
  - Quorum or SAS can produce readable charts, but R/RStudio cannot
- Screen readers provide voice or braille access to computer text, **not images**
- AI image descriptions **cannot adequately describe data viz**
- Can blind people participate in #TidyTuesday?



# What is TidyTuesday?

- Social project providing a new tidy dataset every week
- Online data viz R learning community
- Opportunity to practice summarizing and visualizing data with modern tooling



Tom Mock  
@thomas\_mock



The @R4DScommunity welcomes you to week 19 of #TidyTuesday! We're exploring water access points!

 [bit.ly/tidyreadme](https://bit.ly/tidyreadme)  
 [waterpointdata.org](https://waterpointdata.org)

#r4ds #tidyverse #rstats #dataviz

The graphic features the 'TidyTuesday' logo in a bold, black, brush-stroke font. Below it, in smaller white text, is 'A weekly data project in R from the R4DS online learning community'. To the right of the logo is a diagram showing the relationship between 'tables', 'observations', and 'values'. Below the logo is the 'water point data exchange' logo, which includes the text 'pdx' in a large, bold, black font and 'water point data exchange' in a smaller, blue font, accompanied by a cluster of blue dots of varying sizes. To the right of the graphic is a list of 9 rules for submitting datasets. Below the rules is a section titled 'Submitting Datasets' with a paragraph of text. At the bottom right is a screenshot of the 'mWater' web application, showing a map of water points in a region, with various filters and controls on the right side.

1. The data set comes from the source article or the source that the article credits. Be mindful that the data is what it is and Tidy Tuesday is designed to help you practice data visualization and basic data wrangling in R.

2. Again, the data is what it is! You are welcome to explore beyond the provided dataset, but the data is provided as a "toy" dataset to practice techniques on.

3. This is NOT about criticizing the original article or graph. Real people made the graphs, collected or acquired the data! Focus on the provided dataset, learning, and improving your techniques in R.

4. This is NOT about criticizing or tearing down your fellow #RStats practitioners or their code! Be supportive and kind to each other! Like other's posts and help promote the #RStats community!

5. Use the hashtag #TidyTuesday on Twitter if you create your own version and would like to share it.

6. Include a picture of the visualization when you post to Twitter.

7. Include a copy of the code used to create your visualization when you post to Twitter. Comment your code wherever possible to help yourself and others understand your process!

8. Focus on improving your craft, even if you end up with something simple!

9. Give credit to the original data source whenever possible.

**Submitting Datasets**

Want to submit an interesting dataset? Please open an [issue](#) and post a link to the article (or blogpost, etc) using the data, then we can discuss adding it to a future TidyTuesday Event!

**mWater** Forms Sites Groups Reports Sensors Logged in as john

Map Type: Roads, Satellite

Water Points by Type: All

Group: All

Water Point Types: All Types

Filters: Latest Functional Status is Non-functional

Protected dug well, Unprotected dug well, Borehole or tubewell, Protected spring, Unprotected spring, Rainwater, Surface water, Piped into dwelling, Piped into yardplot, Piped into public tap or basin

10:06 PM · May 3, 2021



68 2 Copy link to Tweet



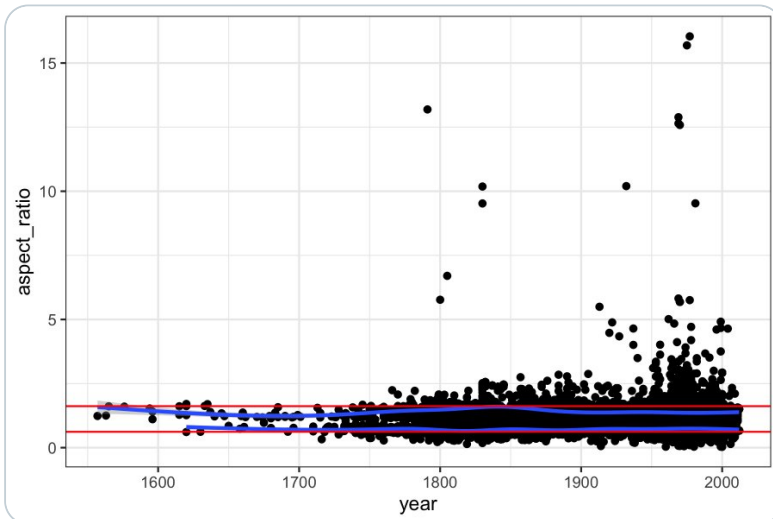
Hao Ye  
@Hao\_and\_Y



Today's #TidyTuesday:  
data on artwork from the @Tate collection,  
and specifically aspect ratios over time

Blue = stat\_smooth GAMs (grouped by  
aspect ratio > 1)

Red = golden ratio ( $\pm 1 + \sqrt{5}$ )/2



1:06 PM · Jan 12, 2021



19 2 Copy link to Tweet

[bit.ly/TidyTuesday](https://bit.ly/TidyTuesday) • Silvia Canelón & Liz Hare • csv,conf,v6

# What do #TidyTuesday visualization tweets include?

- Verbal description
  - author's interest
  - learning process
  - interpretation of the data
- Link to the author's source code
- Data visualization attached as an image
- Alt-text for the image (rarely)

# How were the data collected?

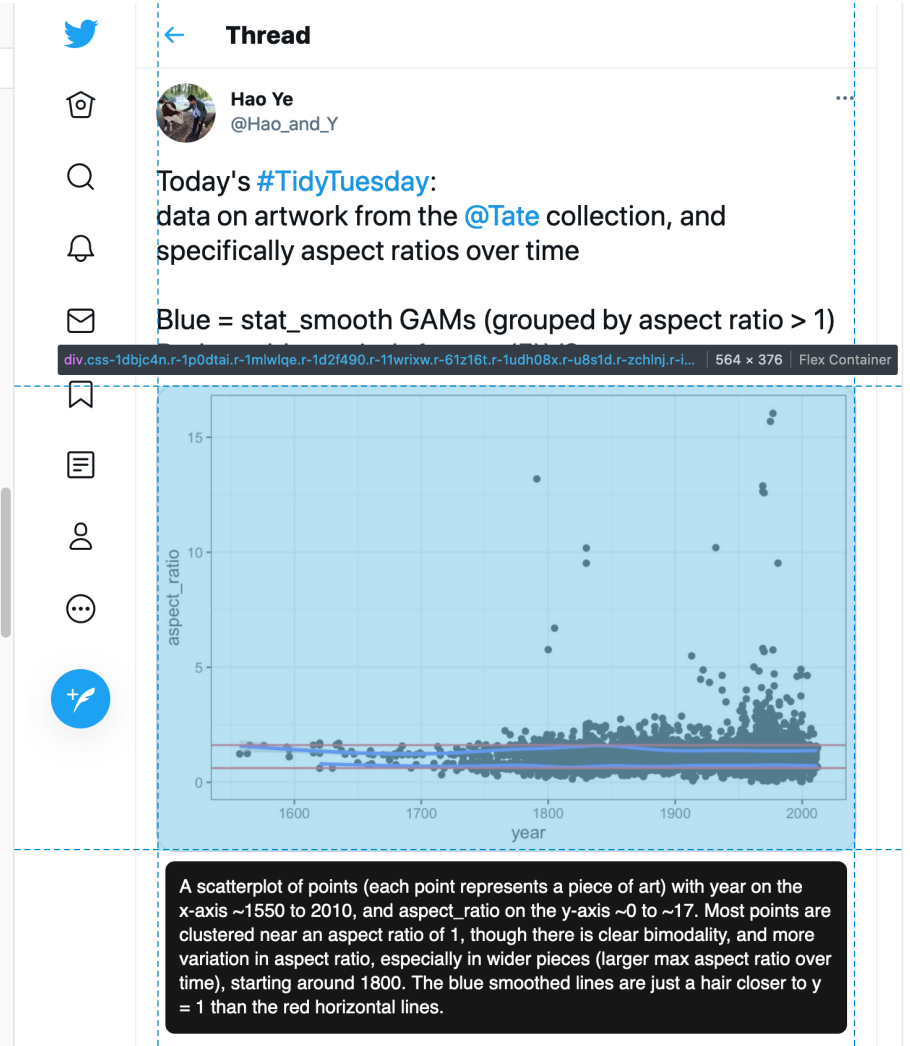
Tweets collected  
& made available  
by Tom Mock  
using `{rtweet}`

Alt text scraped  
by Silvia Canelón  
using `{RSelenium}`  
& available in the  
TidyTuesdayAltText



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```
Inspector
Search HTML
<div class="css-1dbjc4n"> flex
  <a class="css-4rbku5 css-18t94o4 css-1dbjc4n r-1loqt21 r-1ny4l3l" href="/Hao_and_Y/status/1349055287169331200/photo/1" role="link"> event flex
    <div class="css-1dbjc4n r-1adg3ll r-1udh08x" style="">
      <div class="r-1adg3ll r-13qz1uu" style="padding-bottom: 66.6667%;"></div>
      <div class="r-1p0dtai r-1pi2tsx r-1d2f490 r-u8s1d r-ipm5af r-13qz1uu">
        <div class="css-1dbjc4n r-1p0dtai r-1mlwlqe r-1d2f490 r-11wrixw r-61z16t r-1udh08x r-u8s1d r-zchlnj r-ipm5af r-417010 tw-alt-chk" aria-label="A scatterplot of points (each point represents a piece of art...e just a hair closer to y = 1 than the red horizontal lines." style="margin-bottom: 0px; margin-top: 0px;" data-testid="tweetPhoto"> flex
          <div class="css-1dbjc4n r-1niwhzg r-vvn4in r-u6sd8q r-4gszlv r-1p0dtai r-1d2f490 r-u8s1d r-zchlnj r-ipm5af r-13qz1uu r-1wyakw" style="background-image: url('https://pbs.twimg.com/media/Erj0oDwXUAQKoDc?format=jpg&name=900x900');"></div> flex
          <img class="css-9pa8cd" alt="A scatterplot of points (each point represents a piece of art...e just a hair closer to y = 1 than the red horizontal lines."/>
```



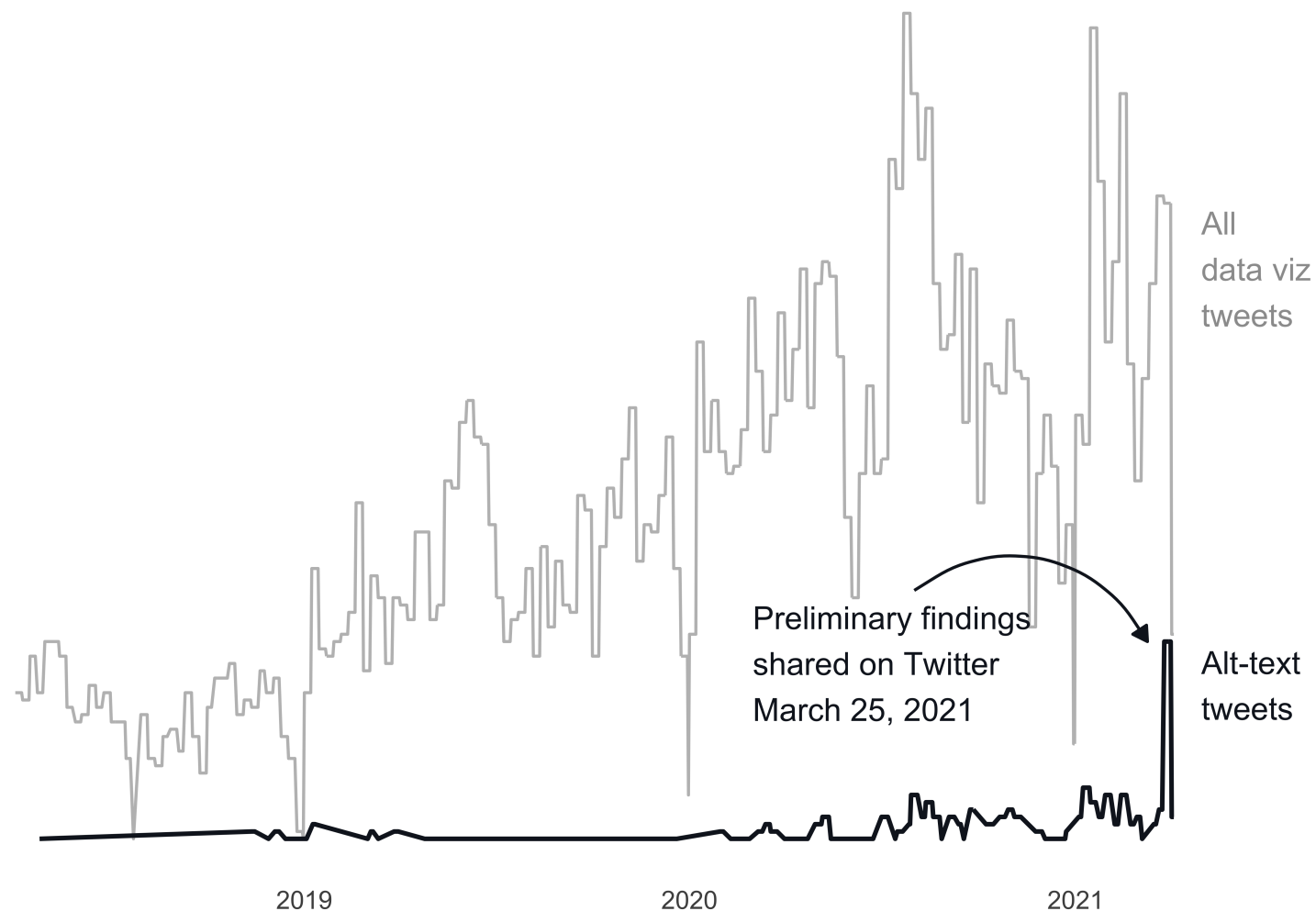
# What did we find?

Over the 3 years of TidyTuesday, there were 7,136 data viz tweets and **only 215 (3%) of them had alt-text**

[Summary of these findings](#)

Participation in TidyTuesday has increased over time but **use of alt-text is recent and remains low**

The conversation on Twitter



# Where else is alt-text missing?

- R books made available freely online
  - R books made available digitally to people with print disabilities by [Bookshare](#)
  - R package documentation
  - R blogs
- 

This shows up at the individual-level and at the corporate-level (e.g. RStudio R Markdown documentation)

# What makes good alt-text?

There were 196 data visualization tweets with relevant alt-text

Alt-text Feature	
1 Description conveys meaning in the data	34%
2 Variables included on the axes	28%
3 Scale described within the description	12%
4 Type of plot is described	56%

# Has the tide started shifting?

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- Conversations are happening
  - Within R: [useR!2021](#), [MiR](#), [TidyTuesday](#)
  - More broadly: [Data Visualization Society](#), [a11y](#) conferences/meetups
- Tooling is slowly receiving updates
  - [New alt text code chunk option](#) for R Markdown
- Changes are just starting and slow



# What can you do?

- **Make your data visualizations accessible everywhere you can**
- **Add alt-text** to websites, journalism, scientific publishing, social media
- **Find ways to describe your visualizations** in words when alt-text isn't available in your documents or platforms

## Data visualization alt-text resources

- [Writing alt-text for data visualization](#)
- [Chartability Data Viz Audit Workbook](#)
- [a11y Data Viz Accessibility Resources](#)

## Tools for Twitter

- [How to make images accessible for people](#)
- Show alt-text for tweets: [Firefox](#)
- Twitter reminder to add alt-text: [Firefox](#)

# Thanks!

[Analysis repo & resources](#) 

This presentation was made using the [xaringan](#), and [xaringanExtra](#) R packages.



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