

25 Data Viz Trends in the #TidyTuesday Community

Neal Grantham
[@nsgrantham](#)

January 28, 2020
rstudio::conf

Tidy Tuesday is a weekly social data project in R

- ① Every week [@thomas_mock](#) and [@R4DSCommunity](#) post a new dataset
- ② R users explore the dataset and make a data visualization of their choosing
- ③ Everyone shares their visualizations on Twitter with [#TidyTuesday](#)

"I'm in! 🕶️ How do I get started?"

Great!

Everything you need to get started is at
github.com/rfordatascience/tidytuesday

Browse past visualizations at tidytuesday.rocks

There are now **96 datasets** and **3,656 tweets**
from **826 users**!

"So what's this presentation about?"

This presentation highlights 25 data visualization trends I have noticed over the past 2 years

You can find a copy of the slides at
nsgrantham.com/data-viz-trends

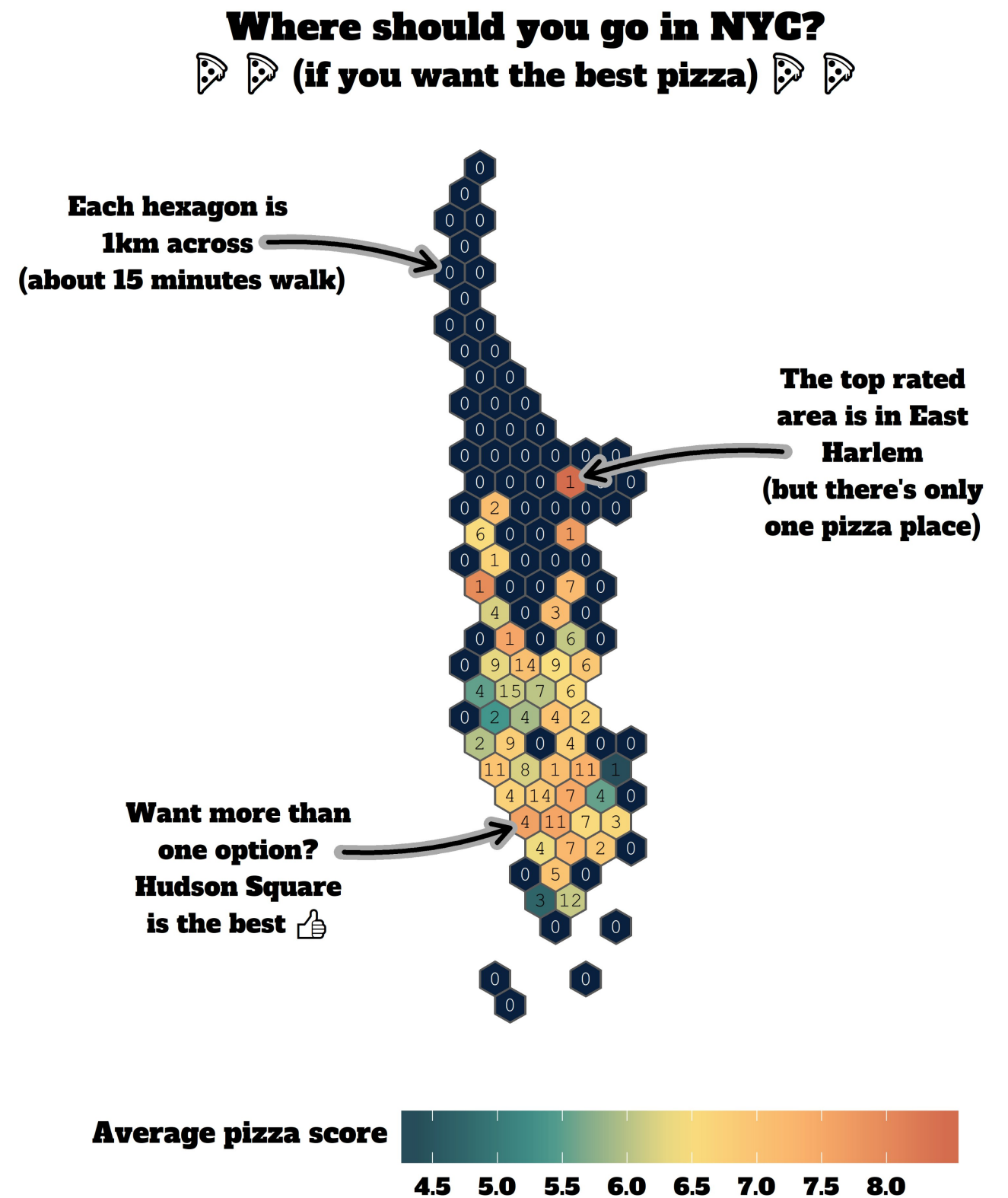
What do you think? Did I miss a trend? I want to hear from you! Share your thoughts with me on Twitter ✨[@nsgrantham](https://twitter.com/nsgrantham) ✨

1. Annotations

Tell a story with your data visualization

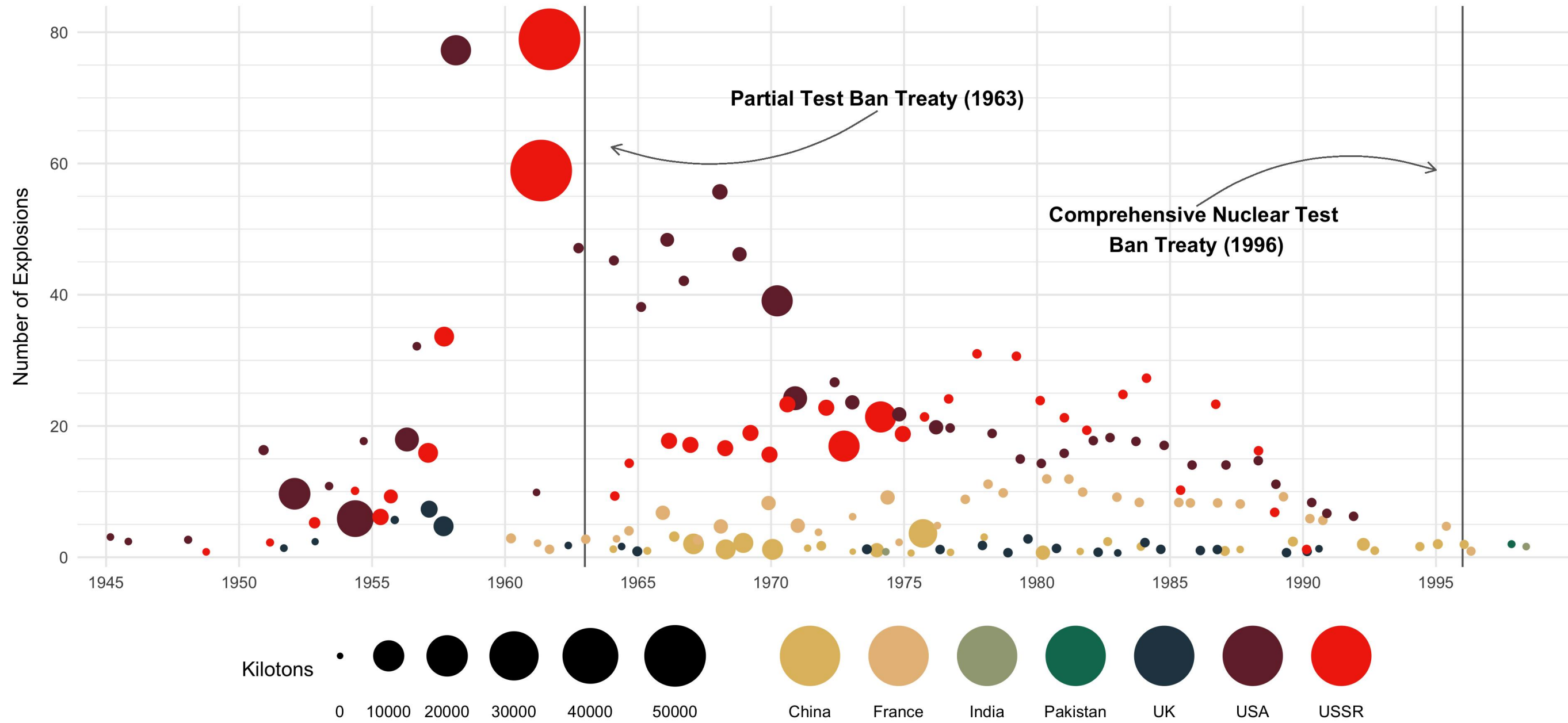
Highlight outliers and other interesting data points

Explain important features of the plot



Nuclear explosions, 1945 - 1998

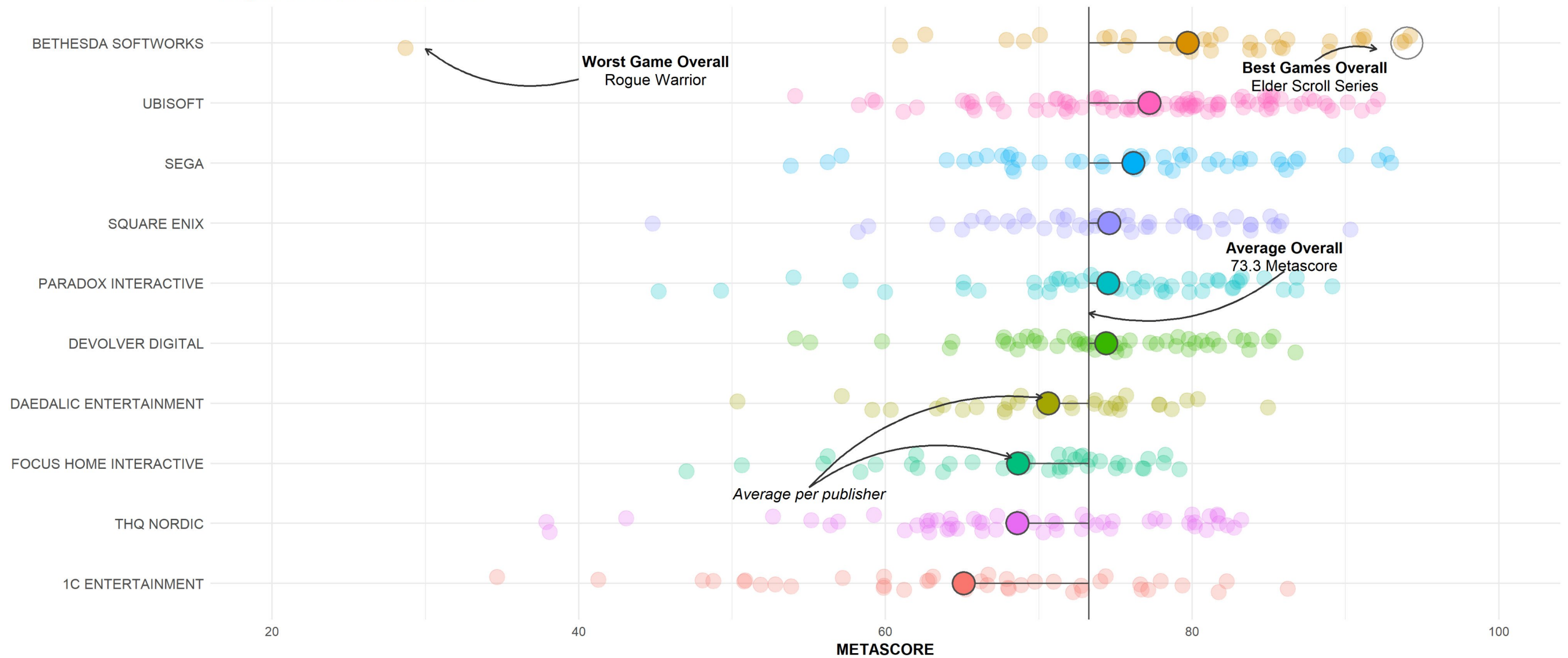
Total number of explosions grouped by year and country
where size reflects the largest annual explosion yield estimate



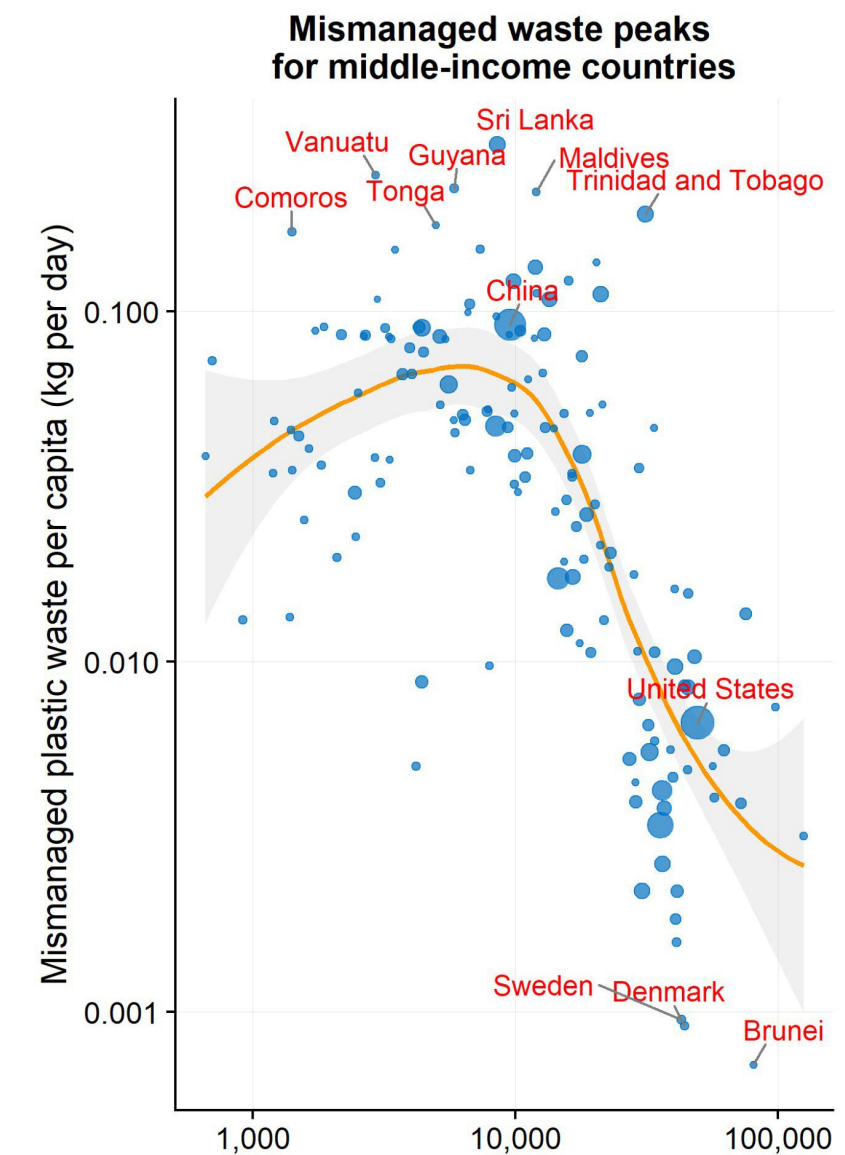
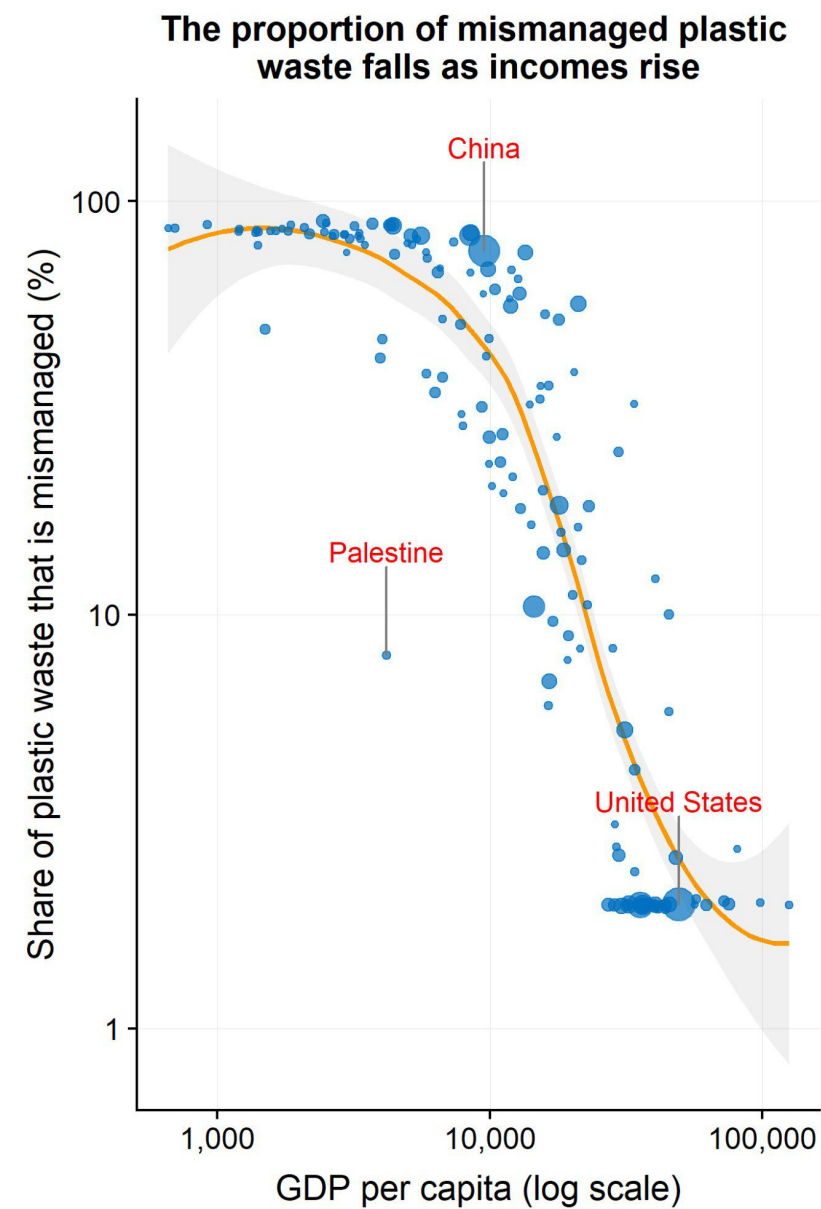
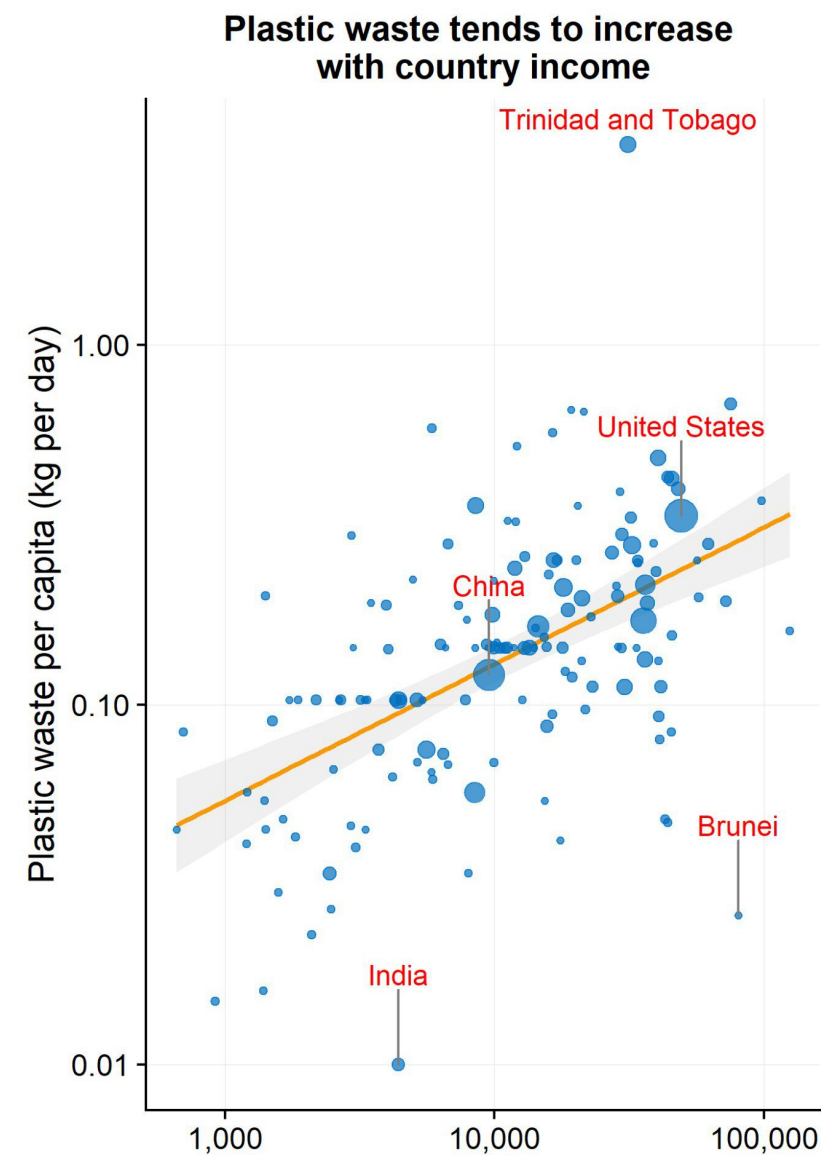
Visualization by @carstenstann | Data: Stockholm International Peace Research Institute

PC Game Ratings by Publisher

Ratings based on Metascore out of 100

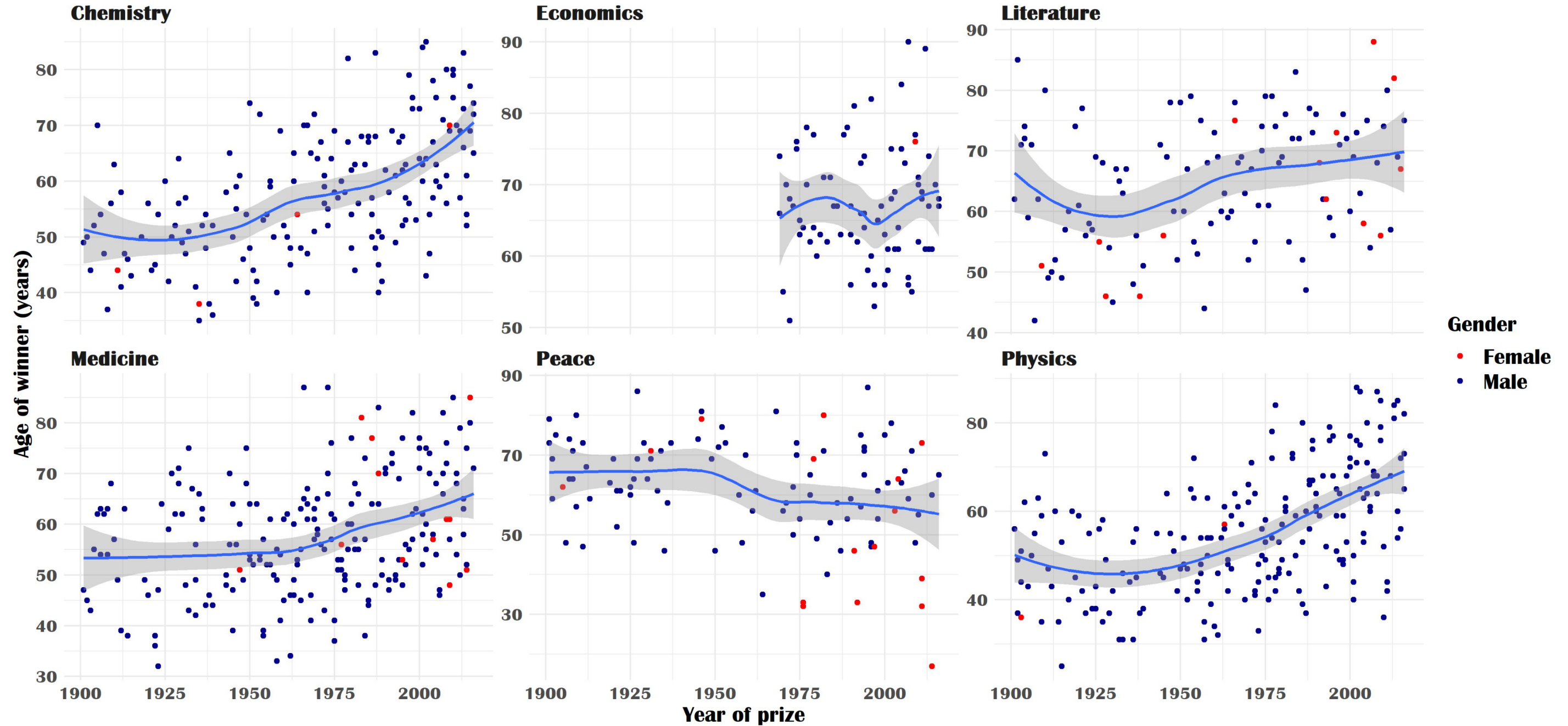


2. Trendlines



Age of Nobel winners at the time of being awarded

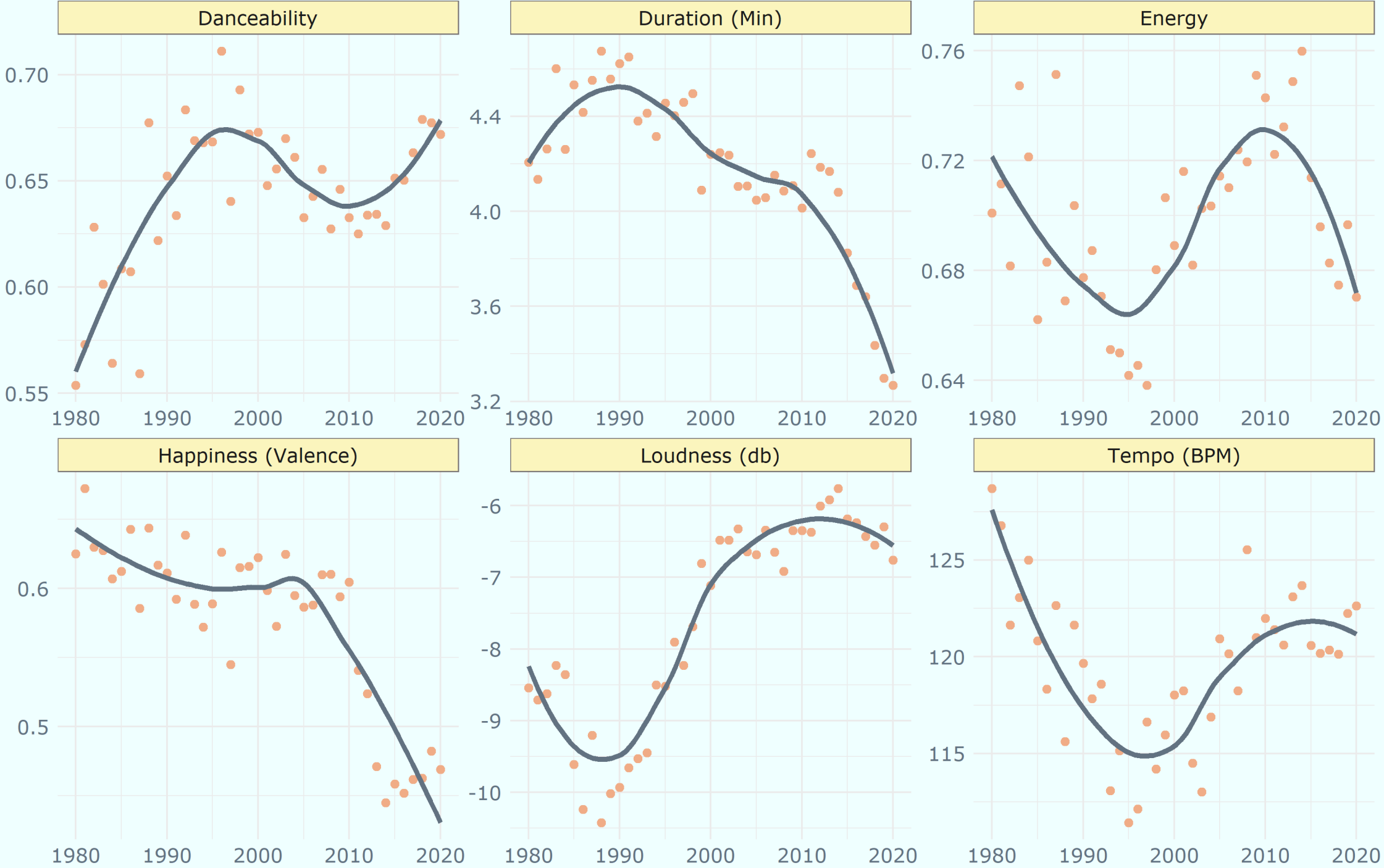
Recent winners of Chemistry and Physics seem to be older



Source: Kaggle

SONG ATTRIBUTE TRENDS 1980-2020

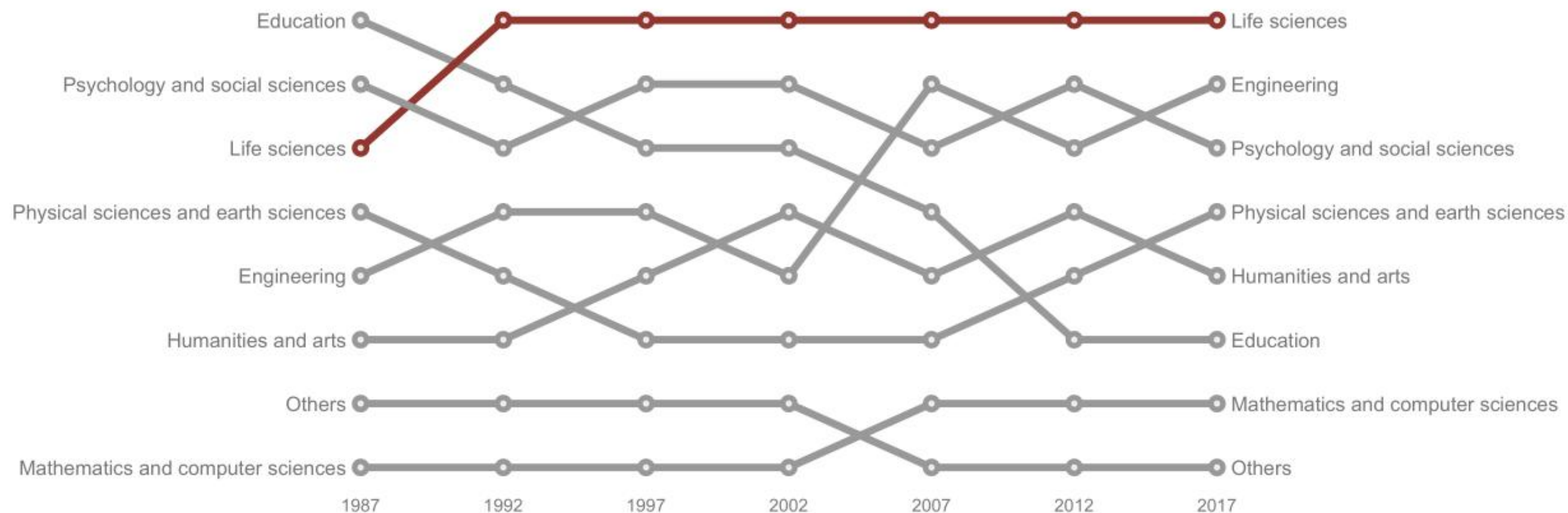
Recently songs have trended more danceable, shorter, less energetic, sader, louder, and faster.



3. Bump Charts

USA Doctorate: fields of study rank from 1987 to 2017

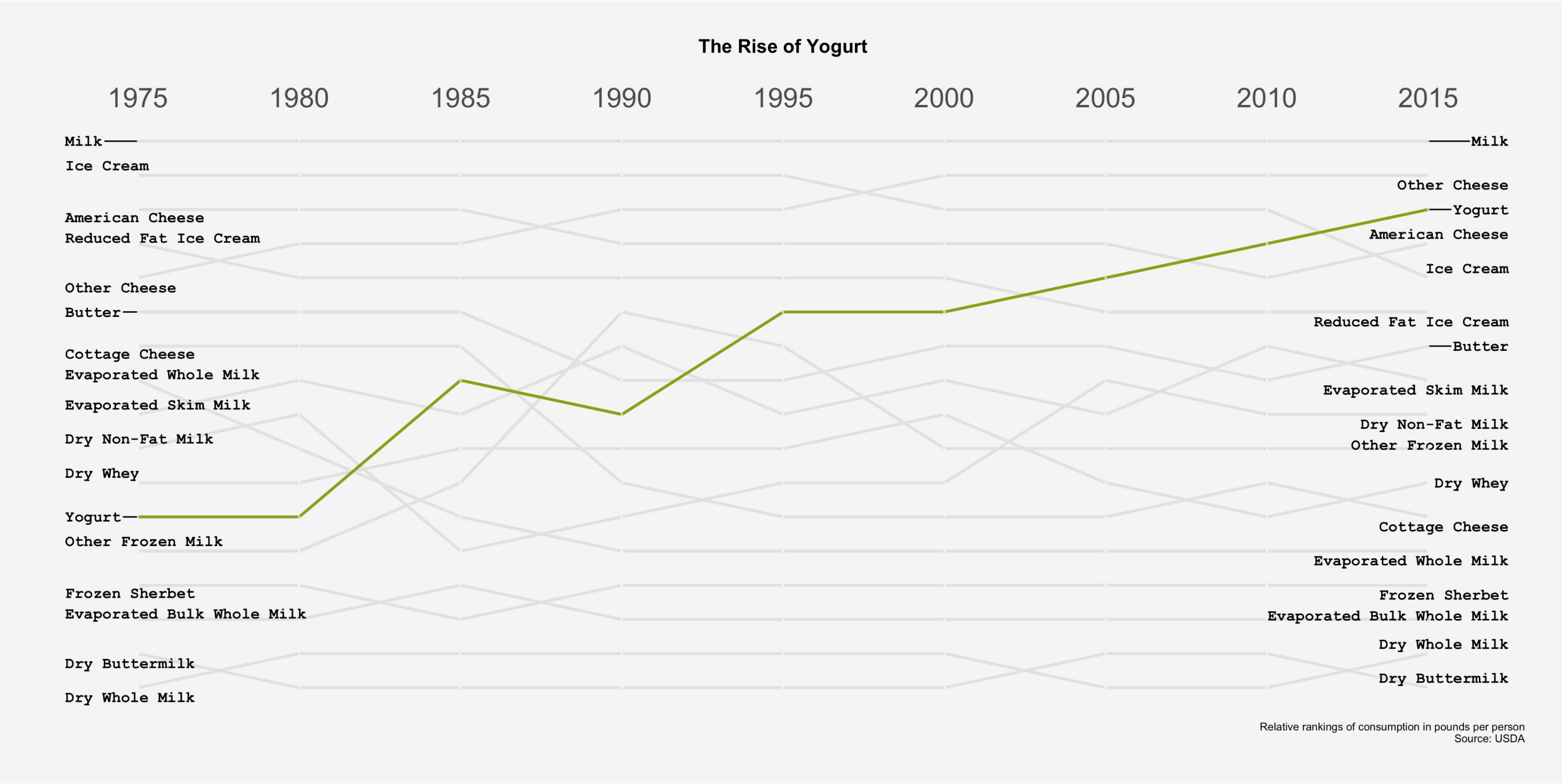
Life science is the favorite field of study for the last 27 years



SOURCE: SED

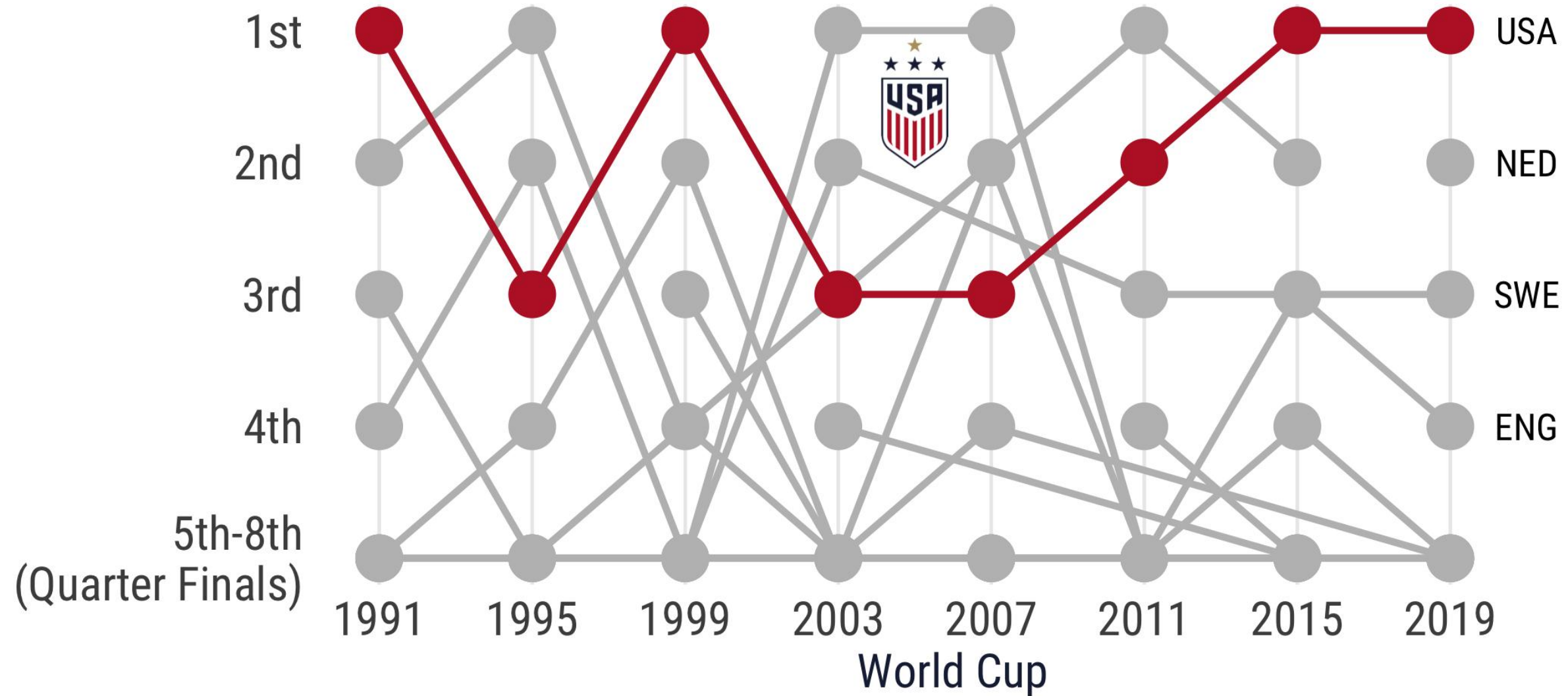


DESIGN: Johanie Fournier, agr.



The US Women's Team is the Winningest Team in World Cup History

The women's team is more successful and brings in more revenue than the men's team, yet they are paid significantly less - around 38% of what the men make.



Source: data.world
Visualization: Frau_Dr_Barber

4. Hexbins (and hex stickers, of course)

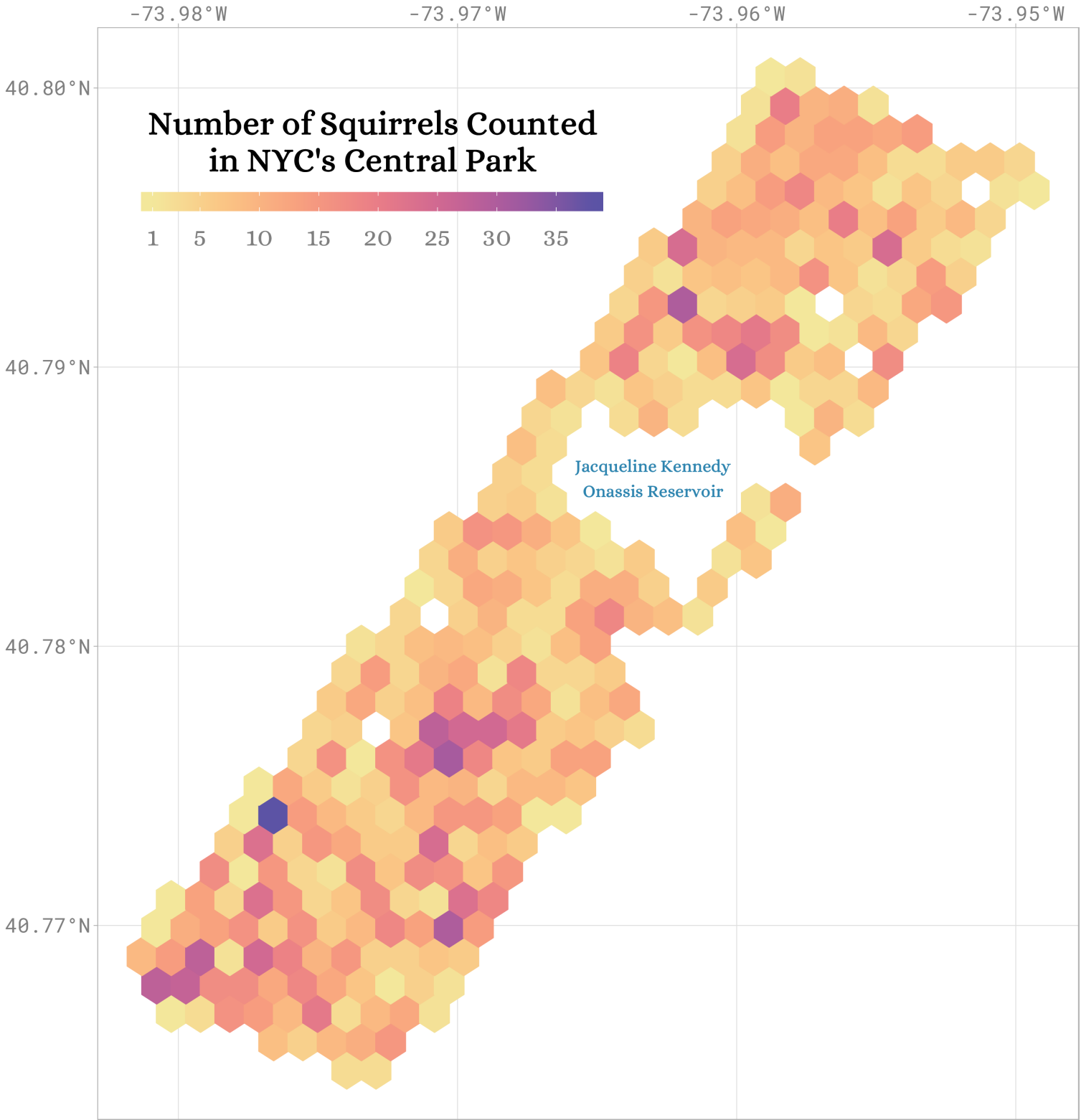


Preparing for [#RStudioConf](#)

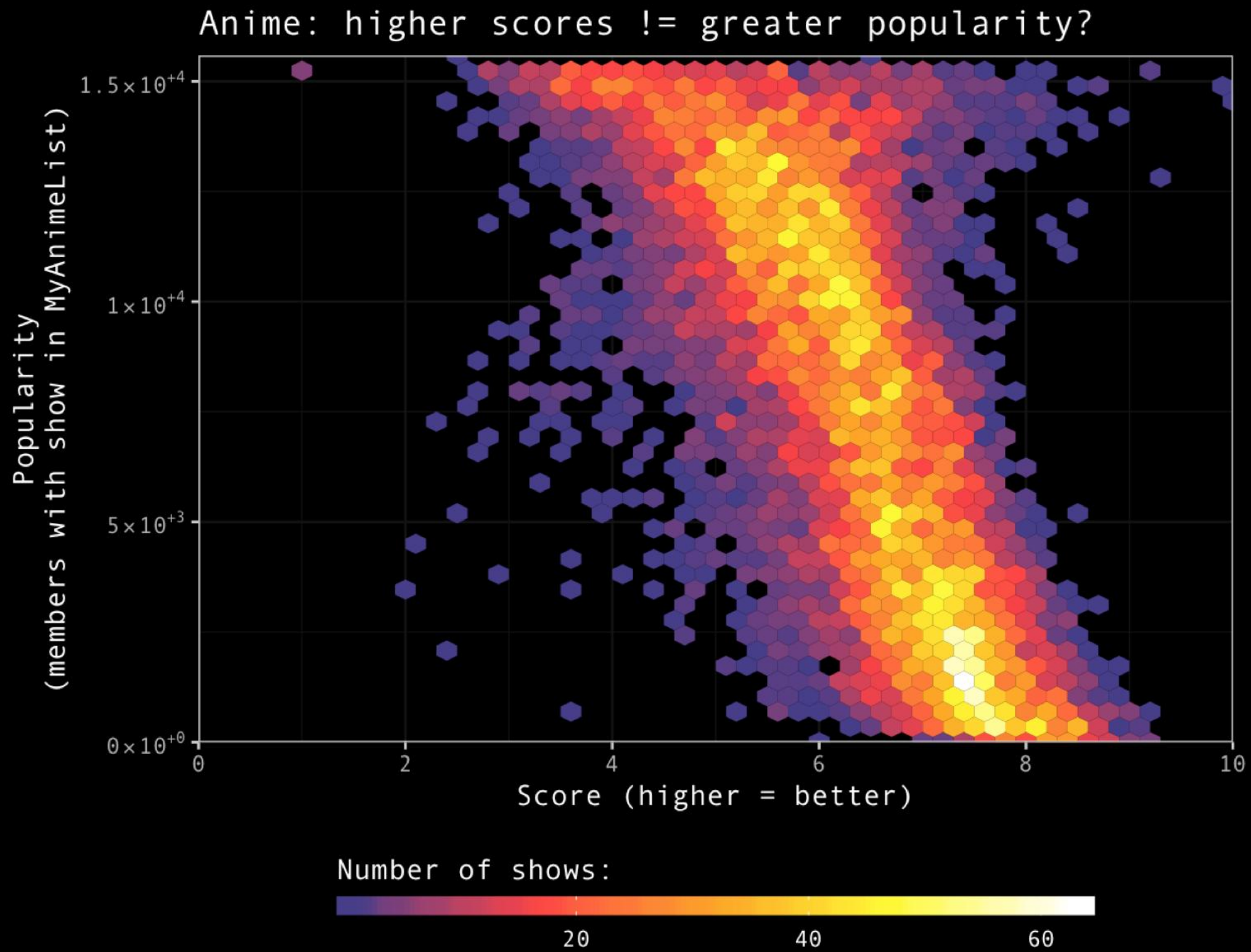


1,347 5:06 PM - Jan 26, 2020

106 people are talking about this



Visualization by Cédric Scherer • Data by NYC Squirrel Census

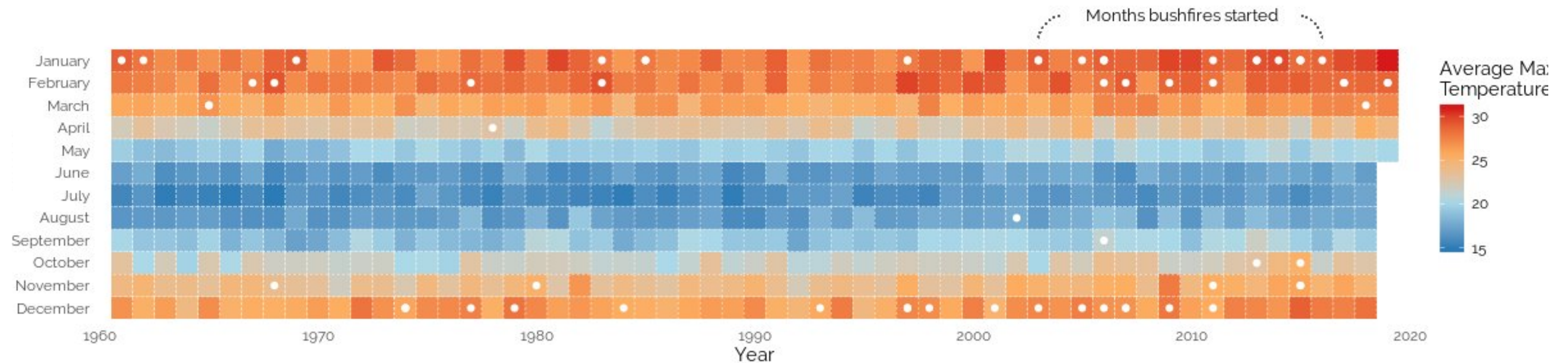




5. Calendar heatmaps

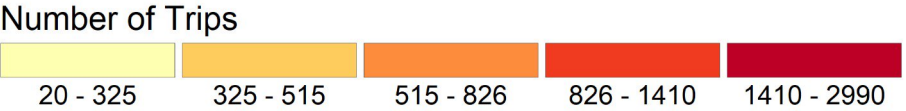
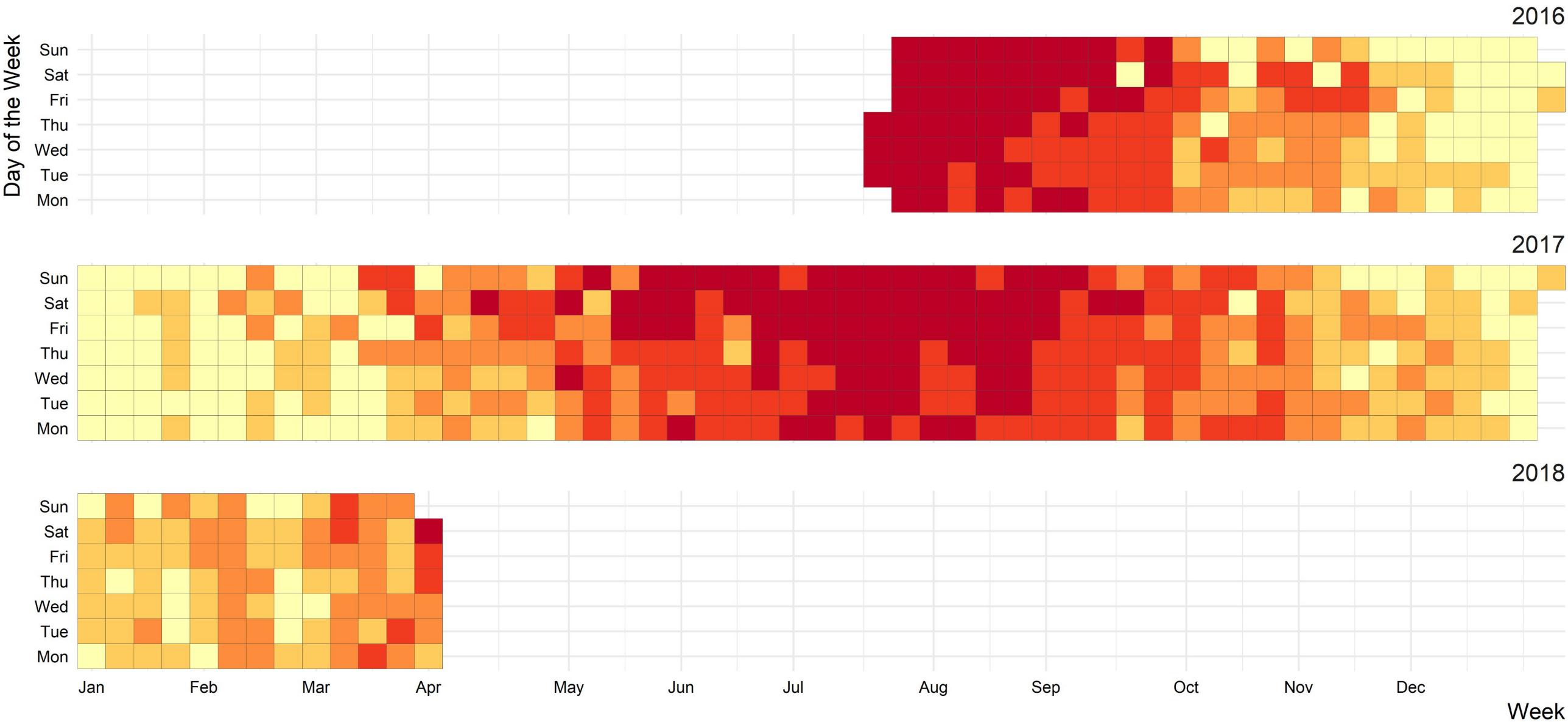
Australia Bushfires Through Time

Bushfires becoming more frequent in last two decades
Average maximum temperature is also on the increase



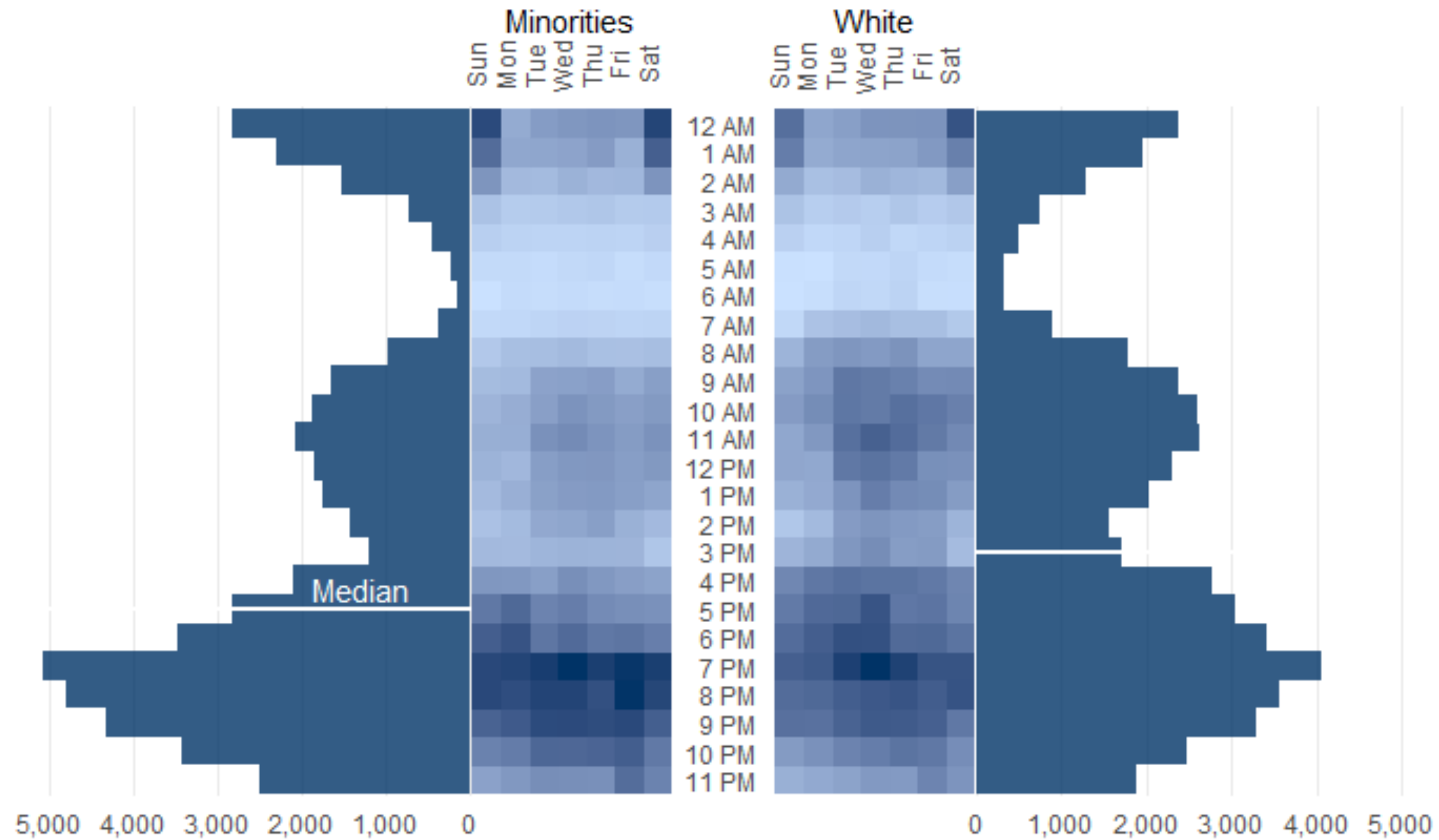
Data: Australian Bureau of Meteorology, Wikipedia | Graphic: Htin Kyaw Aye

Number of Trips per Weekday



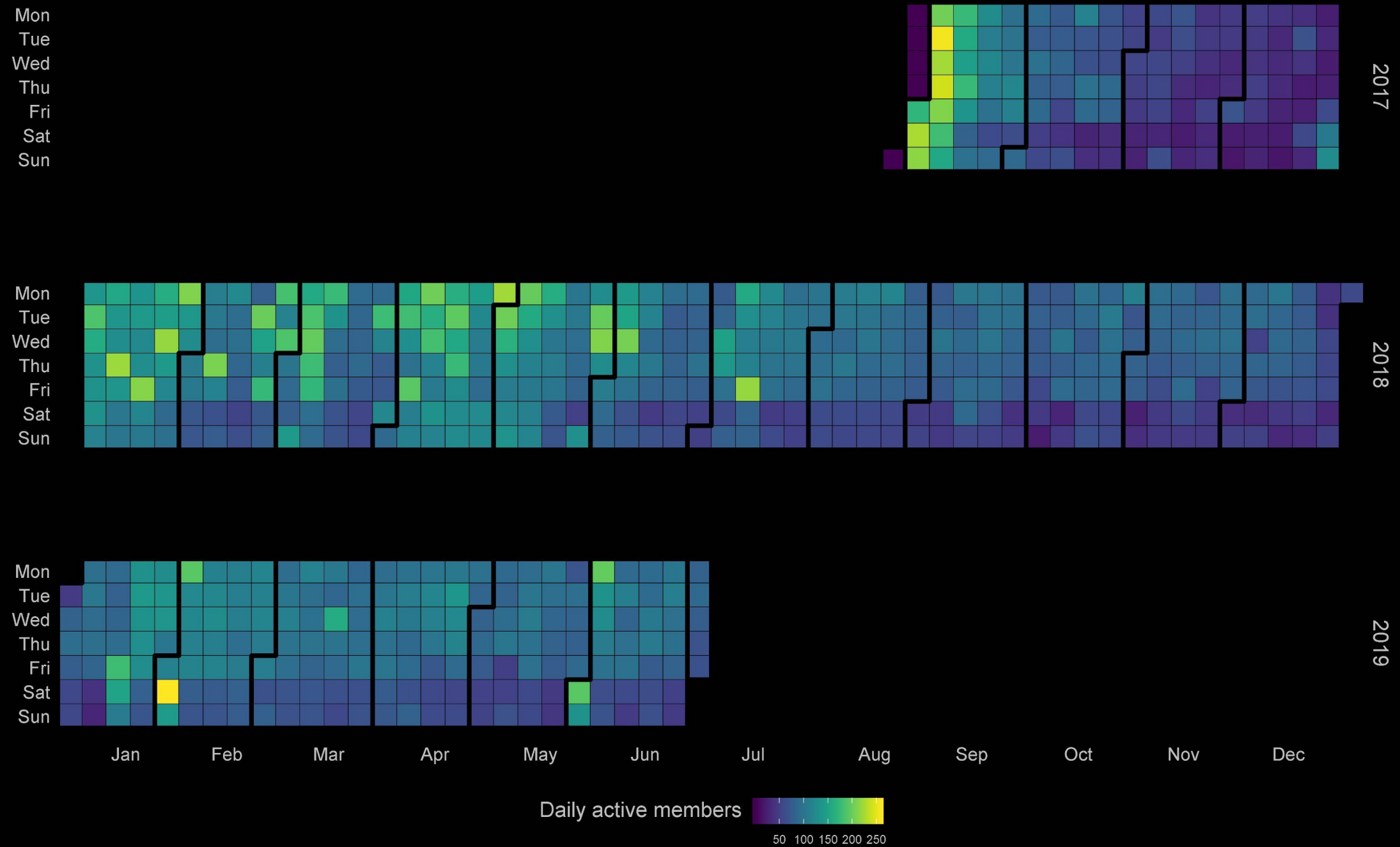
Source: BIKETOWNpdx

Philadelphia Police Stops



Calendar heatmap of the active members

Made with the ggTimeSeries package for super easy calendar heatmap



#Tidy tuesday | Source: R4DS Slack | @alange12407606

6. Custom geoms

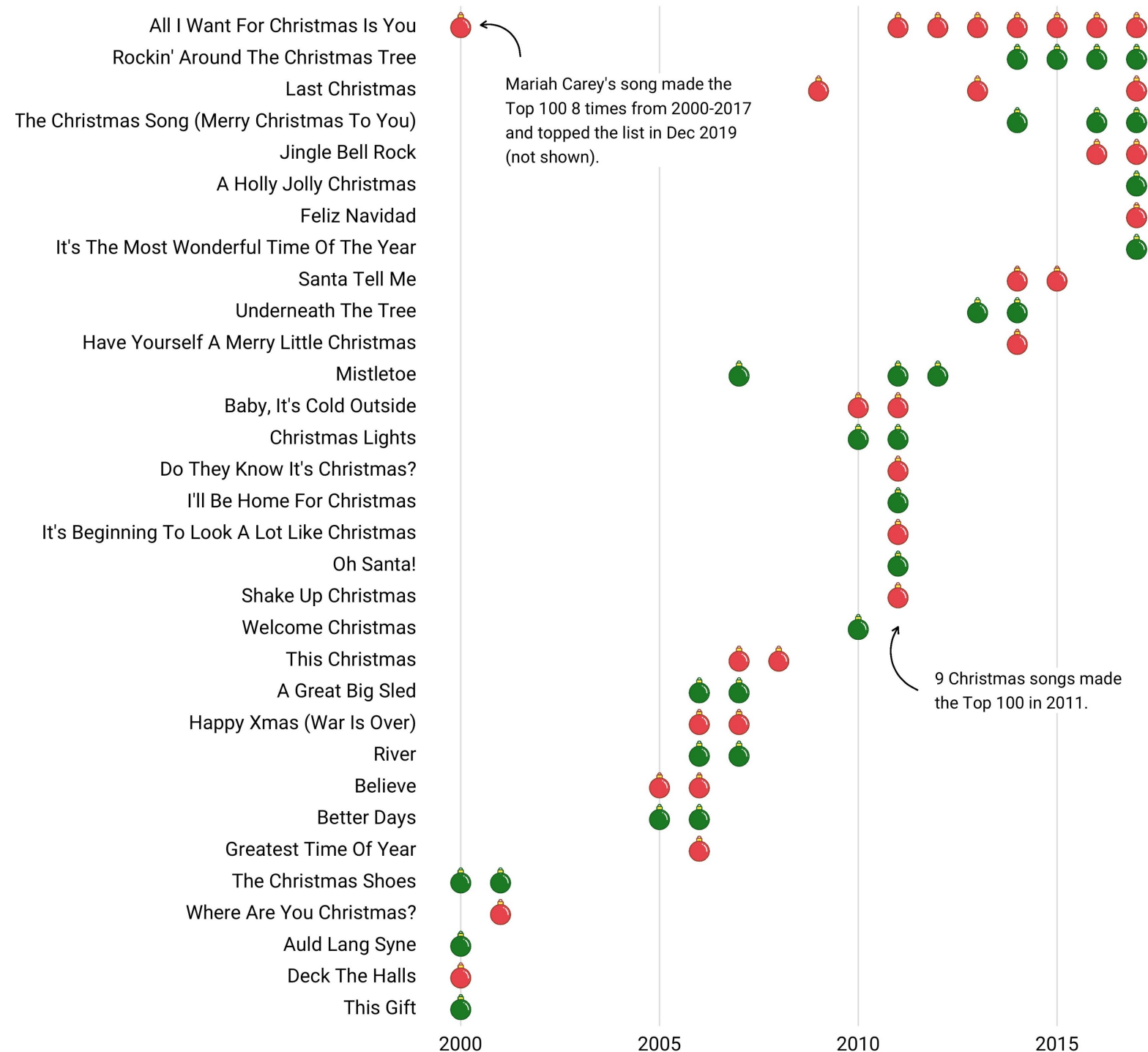
Points, lines, and bars?

Sure, they're great.

But have you tried
making your own
geoms? ✨

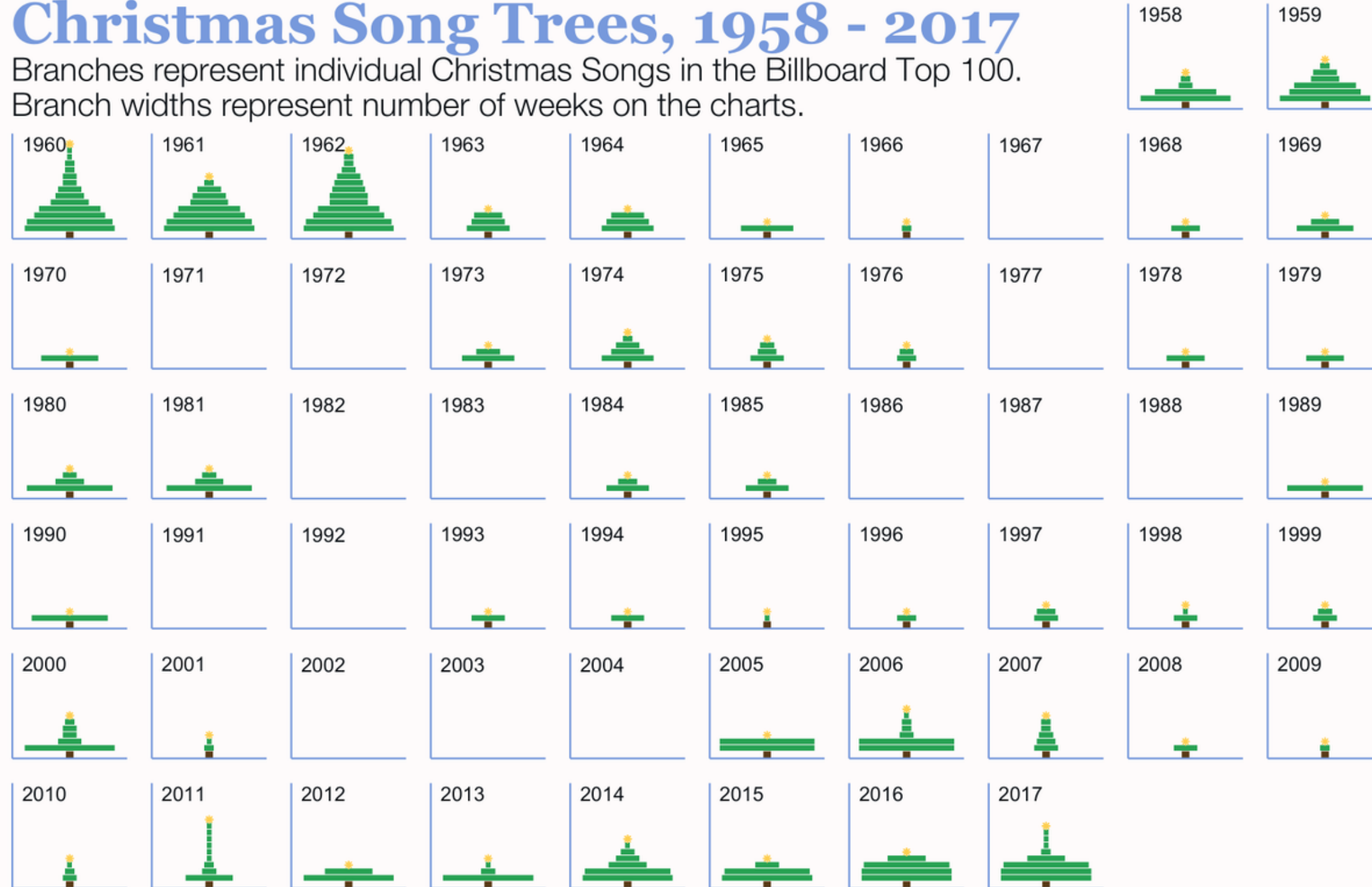
Billboard Top 100 • Christmas Songs

Ornaments indicate that a song made the Top 100 that year.



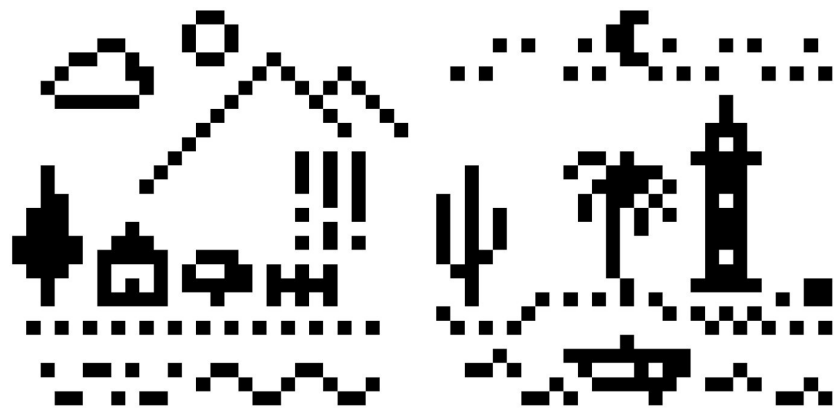
Christmas Song Trees, 1958 - 2017

Branches represent individual Christmas Songs in the Billboard Top 100.
Branch widths represent number of weeks on the charts.



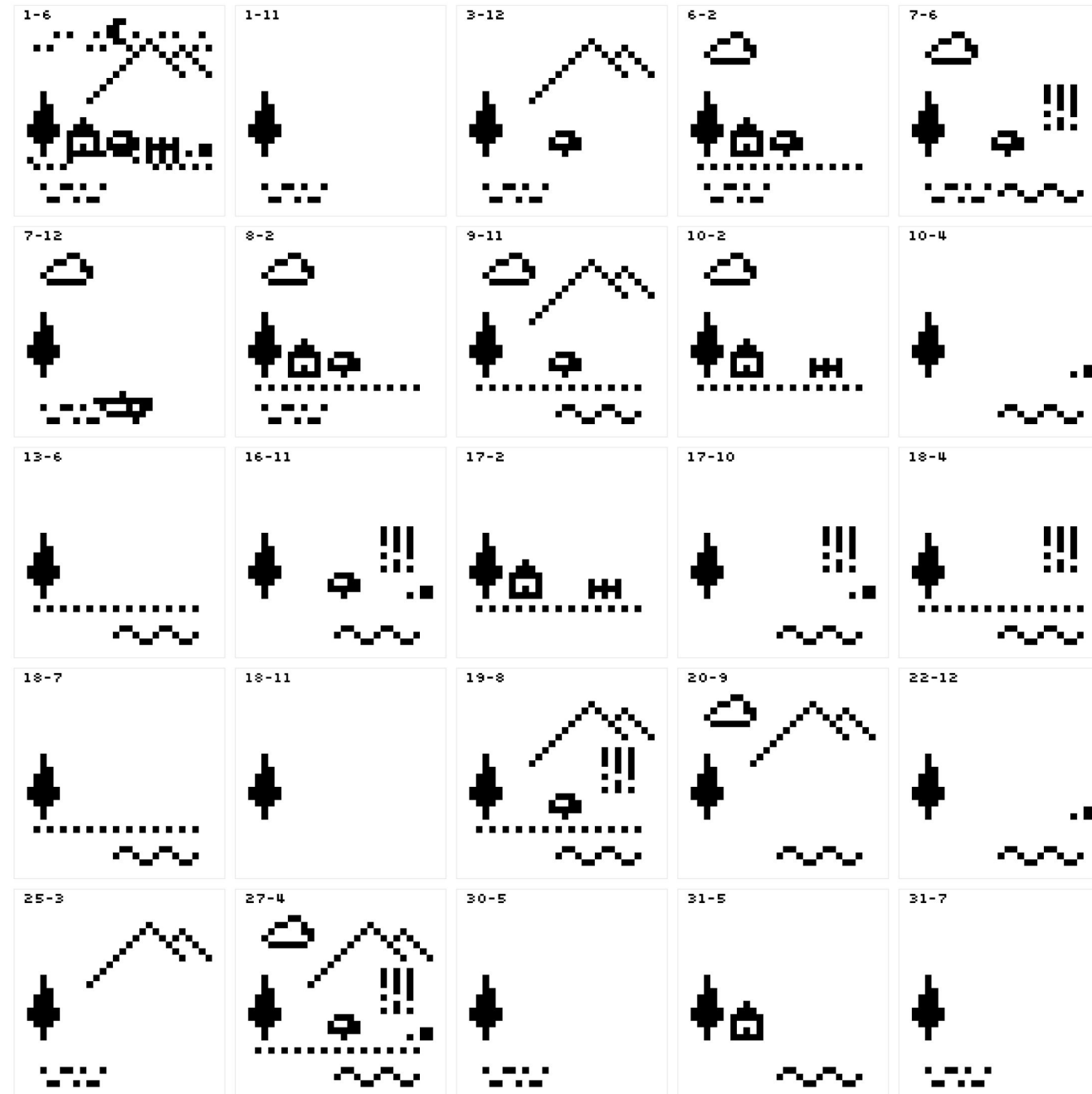
BOB ROSS - PAINTING BY THE ELEMENTS

GRAPHIC REPRESENTATIONS OF BOB ROSS' PAINTINGS WITH ELEMENTS IDENTIFIED IN THEM BY WALT HICKEY (FIVETHIRTYEIGHT). EACH ELEMENT REPRESENTS ONE OR MORE OCCURRENCES IN THE PAINTING. ONLY THE ELEMENTS IN THE LEGEND BELOW ARE DRAWN. TO THE RIGHT THERE ARE 25 RANDOM PAINTINGS THAT BOB PAINTED IN 'THE JOY OF PAINTING', WITH THE SEASON AND EPISODE NUMBER.



CLOUD (CIRRUS, CUMULUS), MOON, NIGHT, PALM TREE, SUN, MOUNTAIN (HILLS), CACTUS, LIGHTHOUSE, ROCKS, TREE (DECIDUOUS, CONIFER), BEACH, BOAT, CABIN (BARN, BUILDING, FARM), SEA (OCEAN, WAVES), BUSHES, FENCE, GRASS, WATERFALL, LAKE, RIVER

SOURCE: FIVETHIRTYEIGHT | PLOT: GEORGIOS KARAMANIS

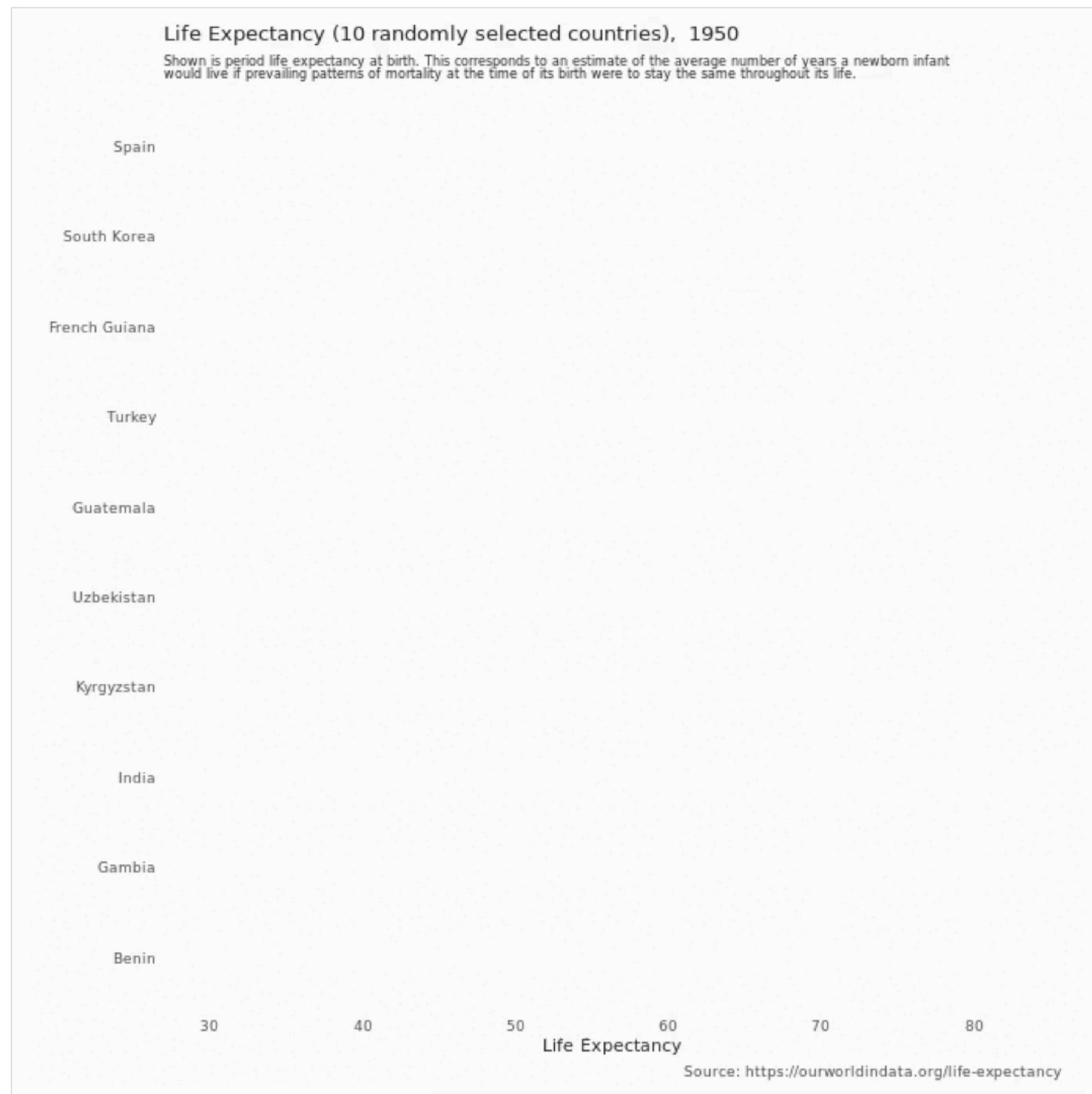


7. Animations

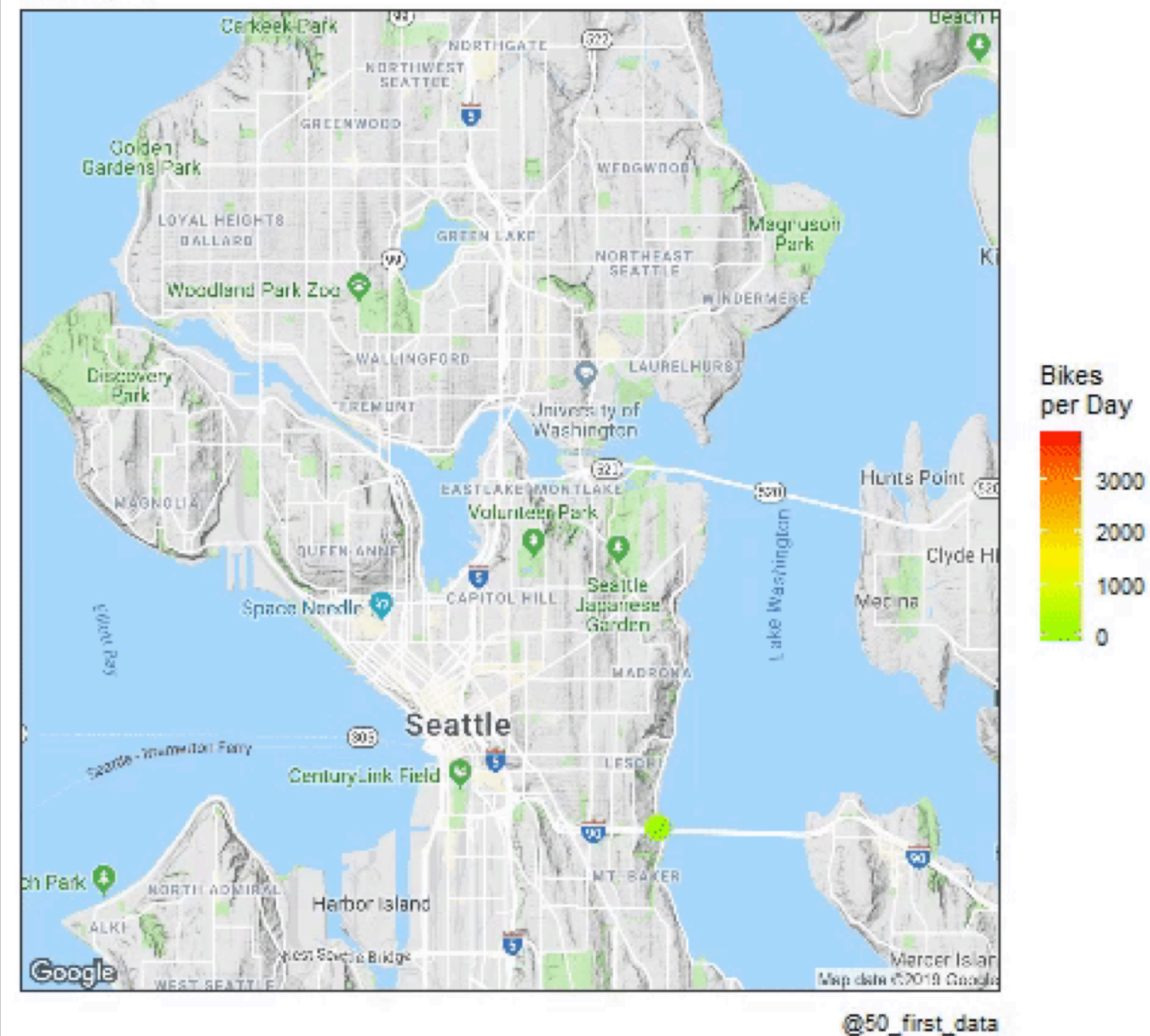
The Sky is Falling

Falling rocks by year and size





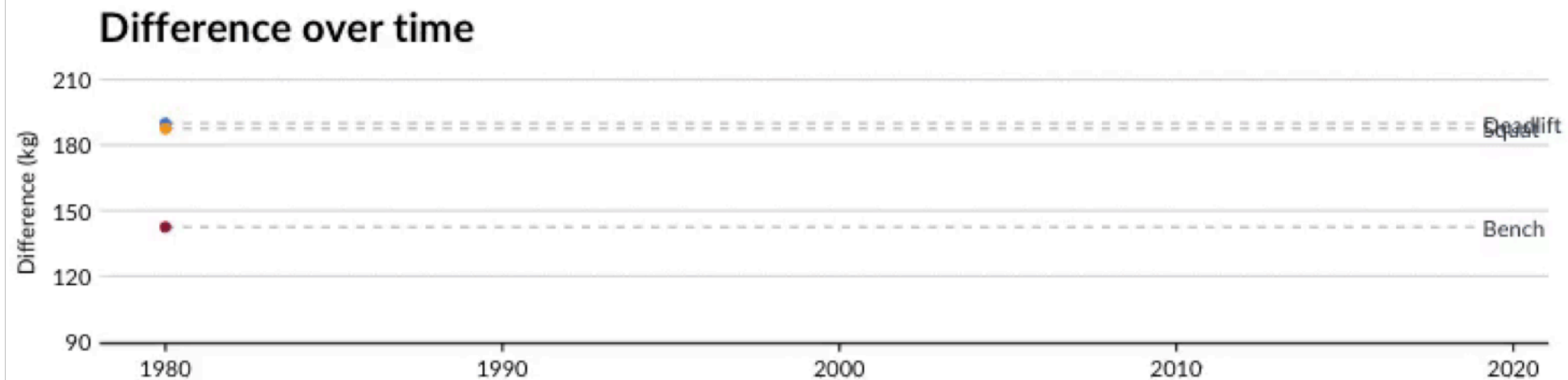
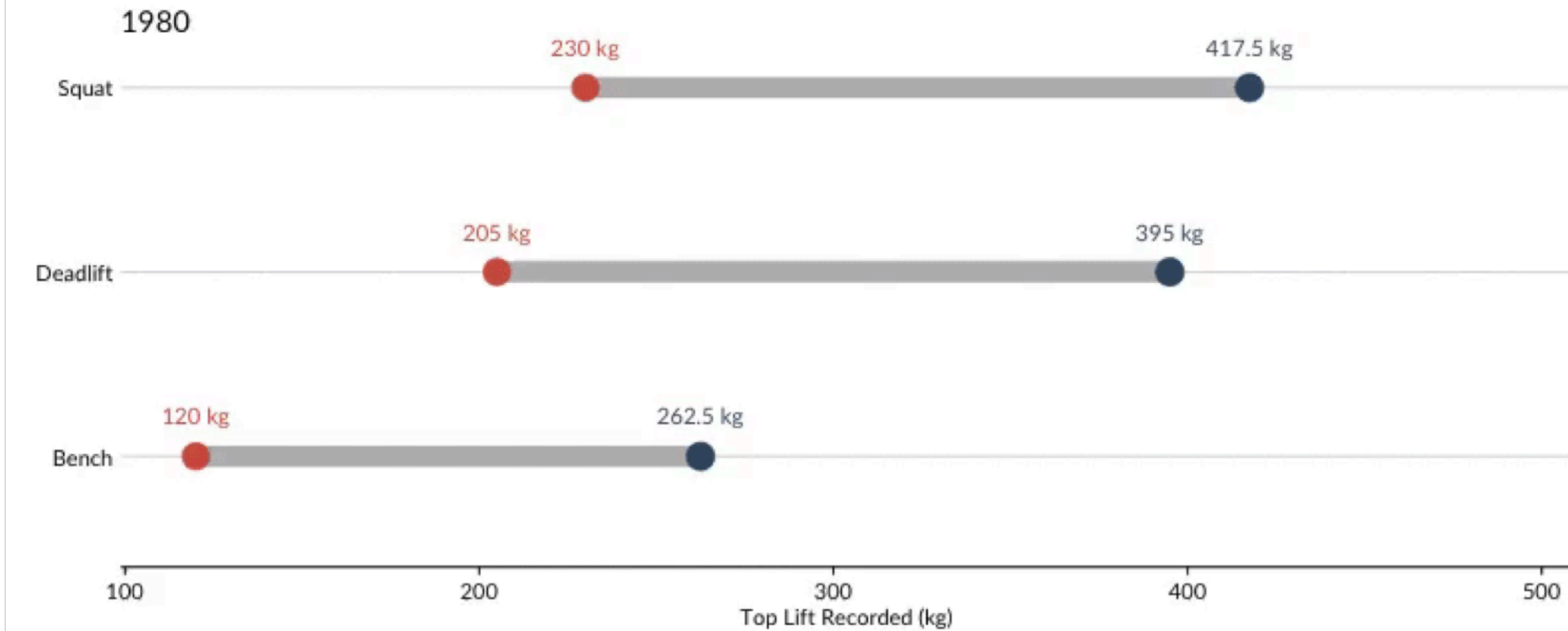
#TidyTuesday Seattle Bike Counters 2013-12-18



🕒 Life Expectancy by @jdbarillas (left) and 🚲 Seattle Bike Traffic by @50_first_data (right)

How Women and Men Differ in Top Lifts

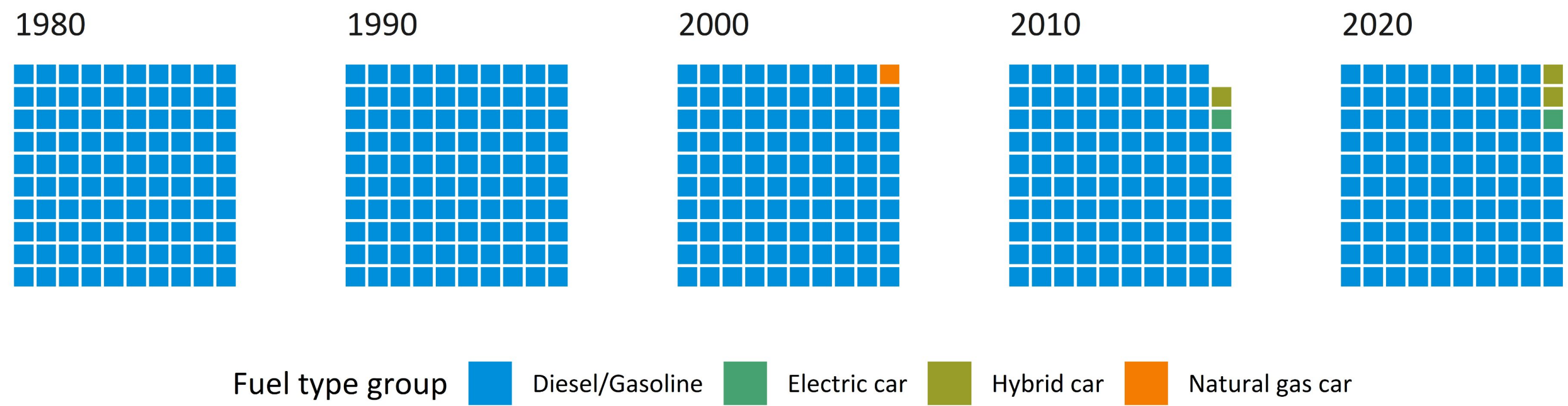
This plot depicts the difference between the heaviest lifts for each sex at International Powerlifting Federation events over time.



8. Waffles

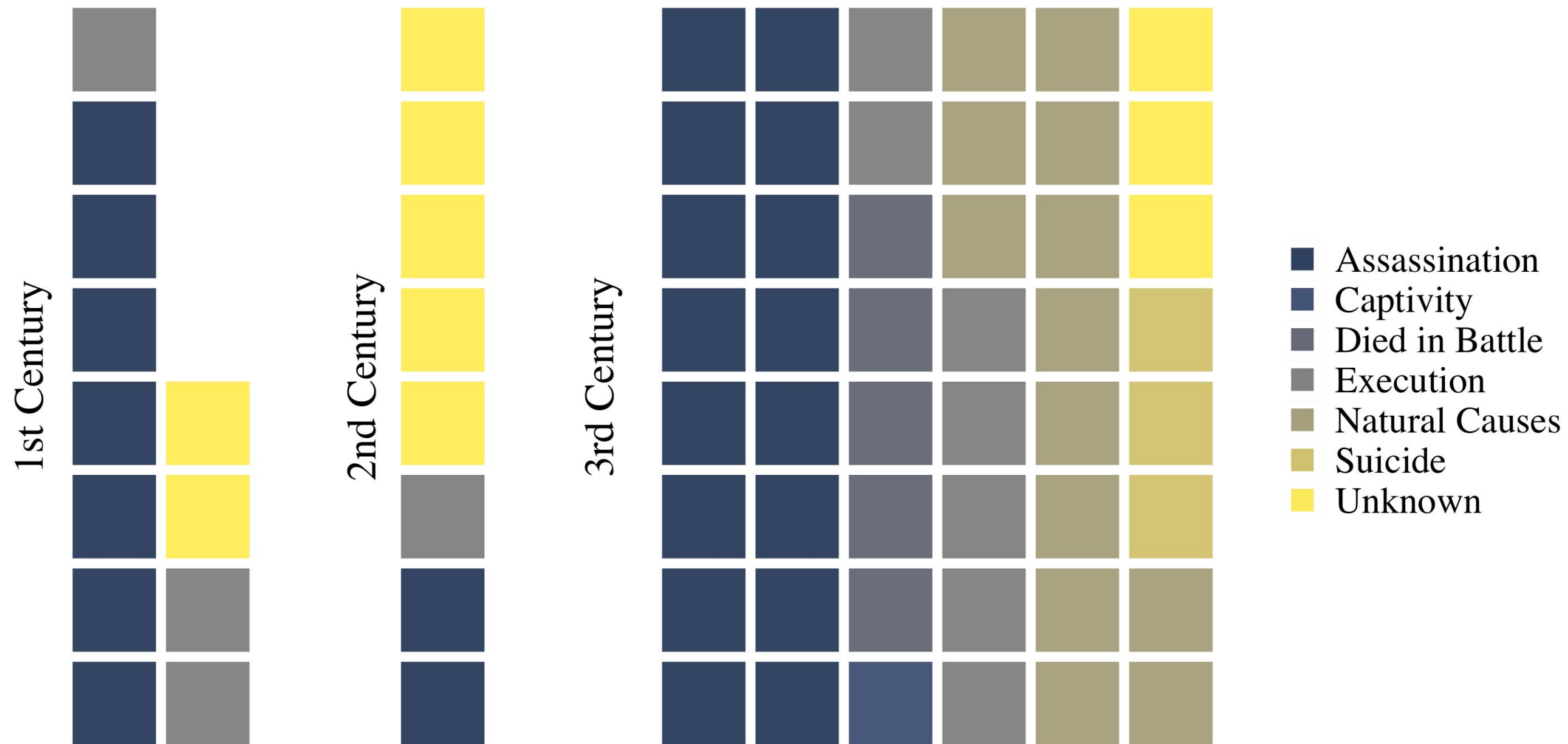
The monopoly of conventional fuels

Fuel type by decade in a 100 space car parking



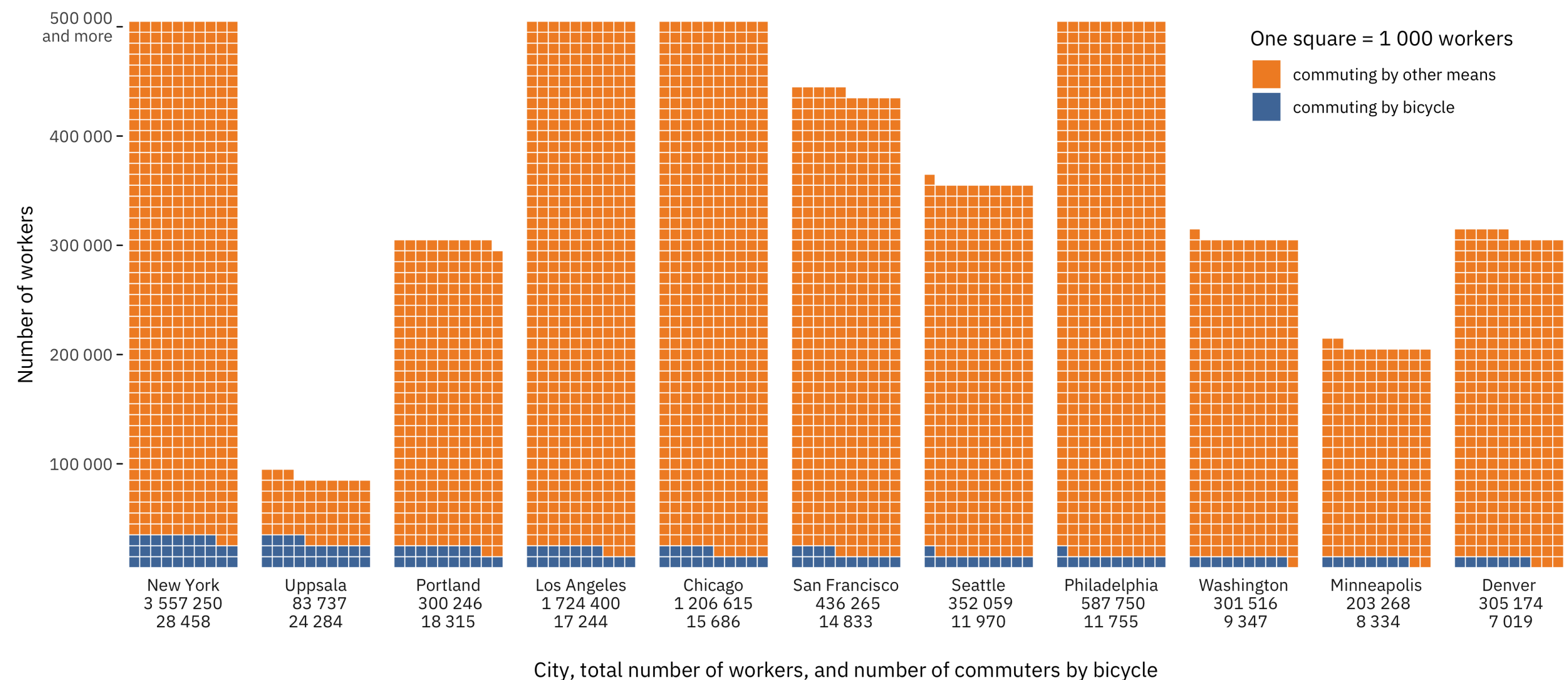
@perspectivealean

"Not that I loved Caesar less, but that I loved Rome more"
Roman Emperors, cause of death by century



Uppsala, Sweden, has almost* as many workers that commute by bicycle as New York (*not really, but close)

Comparing Uppsala, Sweden, to the top 10 US cities with the most workers that commute by bicycle. The US data are from the ACS Survey between 2008 and 2012. The commuting data for Uppsala come from the If survey for the period between April and September 2015, and the population data from the SCB for 2015.



9. Meetups

Tidy Tuesday Club at UCSB Bren School

Many regular meetups hosted worldwide by RLadies like

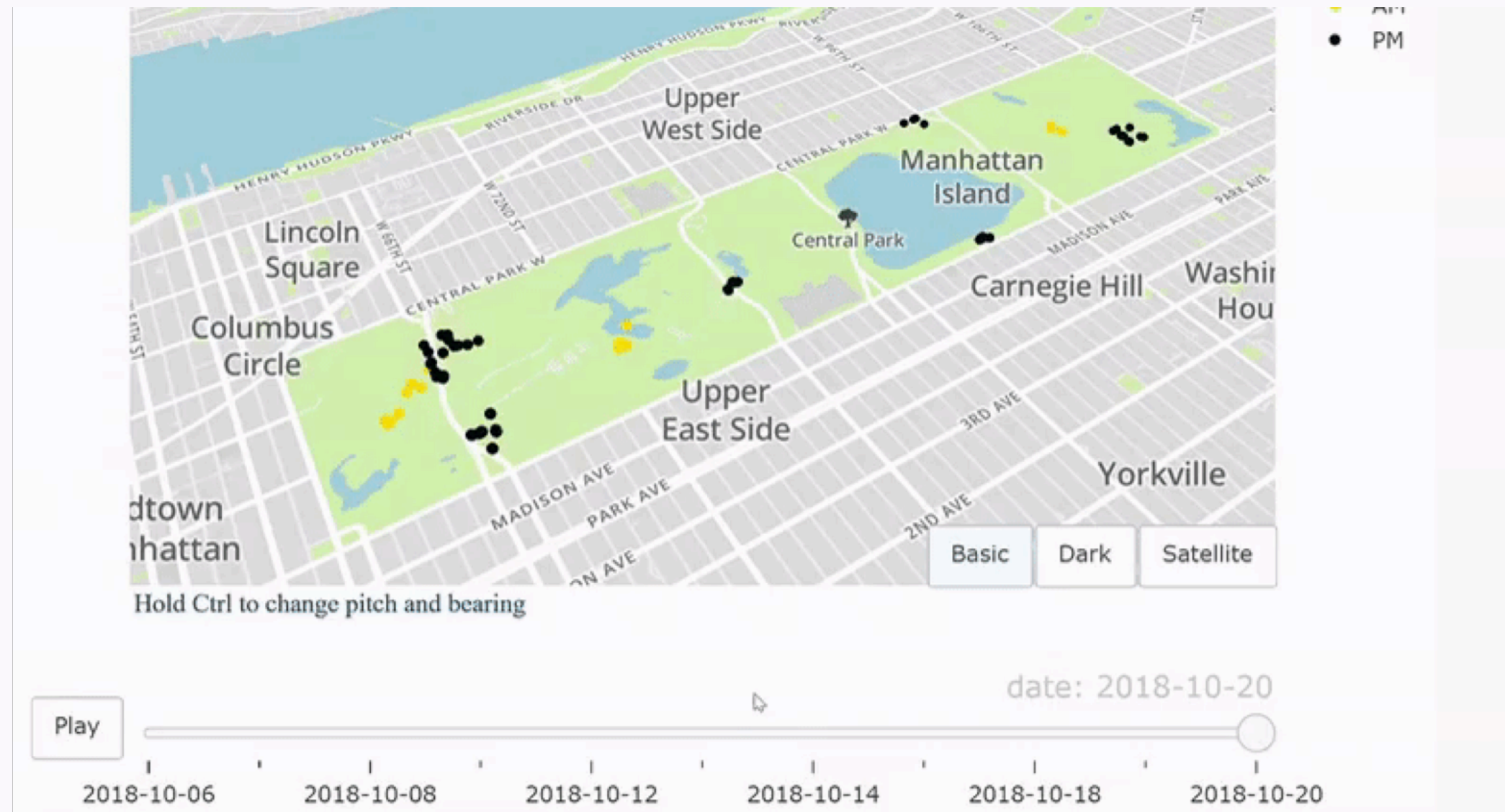
@RLadiesAKL,
@RLadiesRTP,
@RLadiesFreiburg,
and more

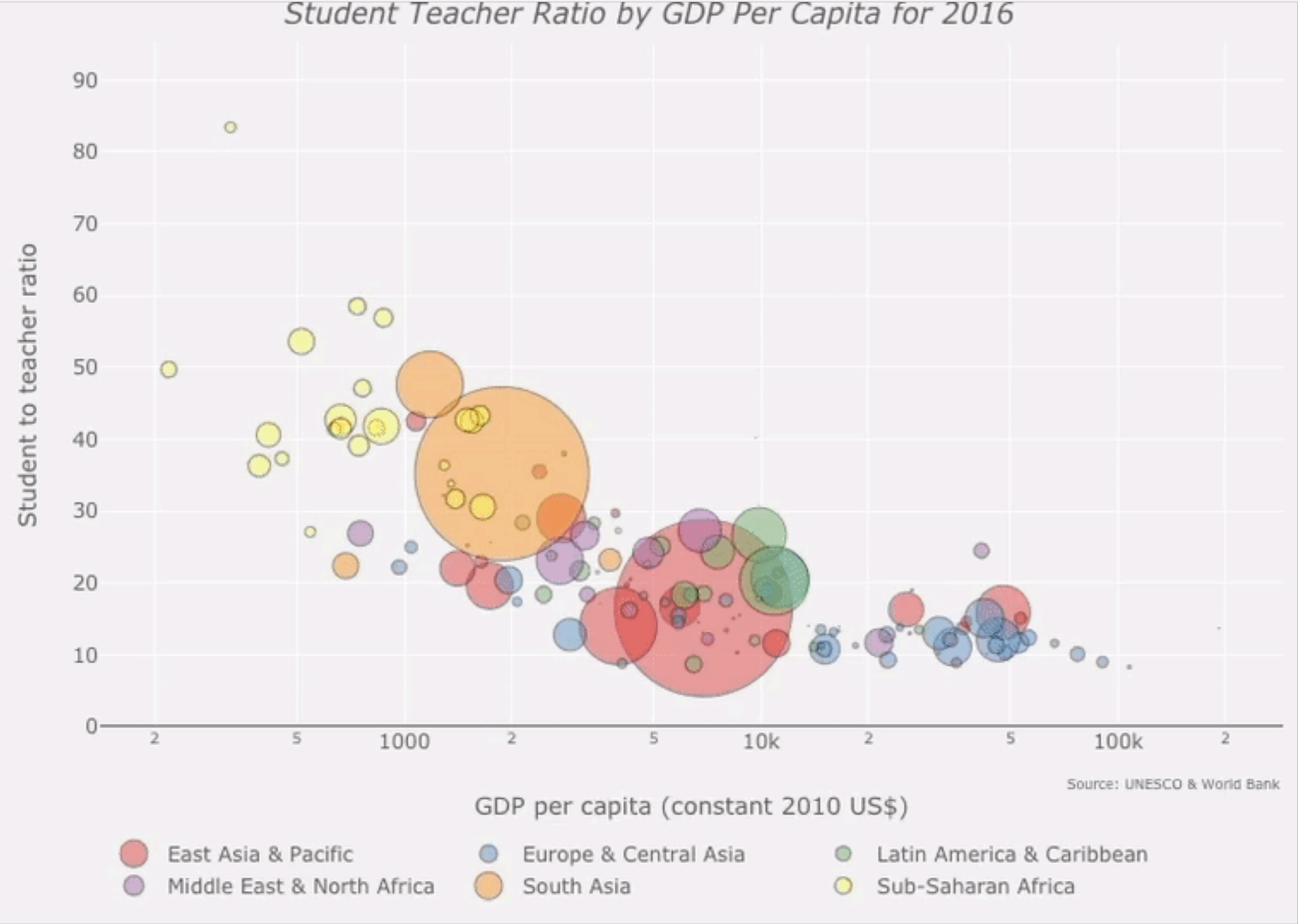
@GracieGW celebrates a #TidyTuesday code win





10. Interactivity





11. Small multiples

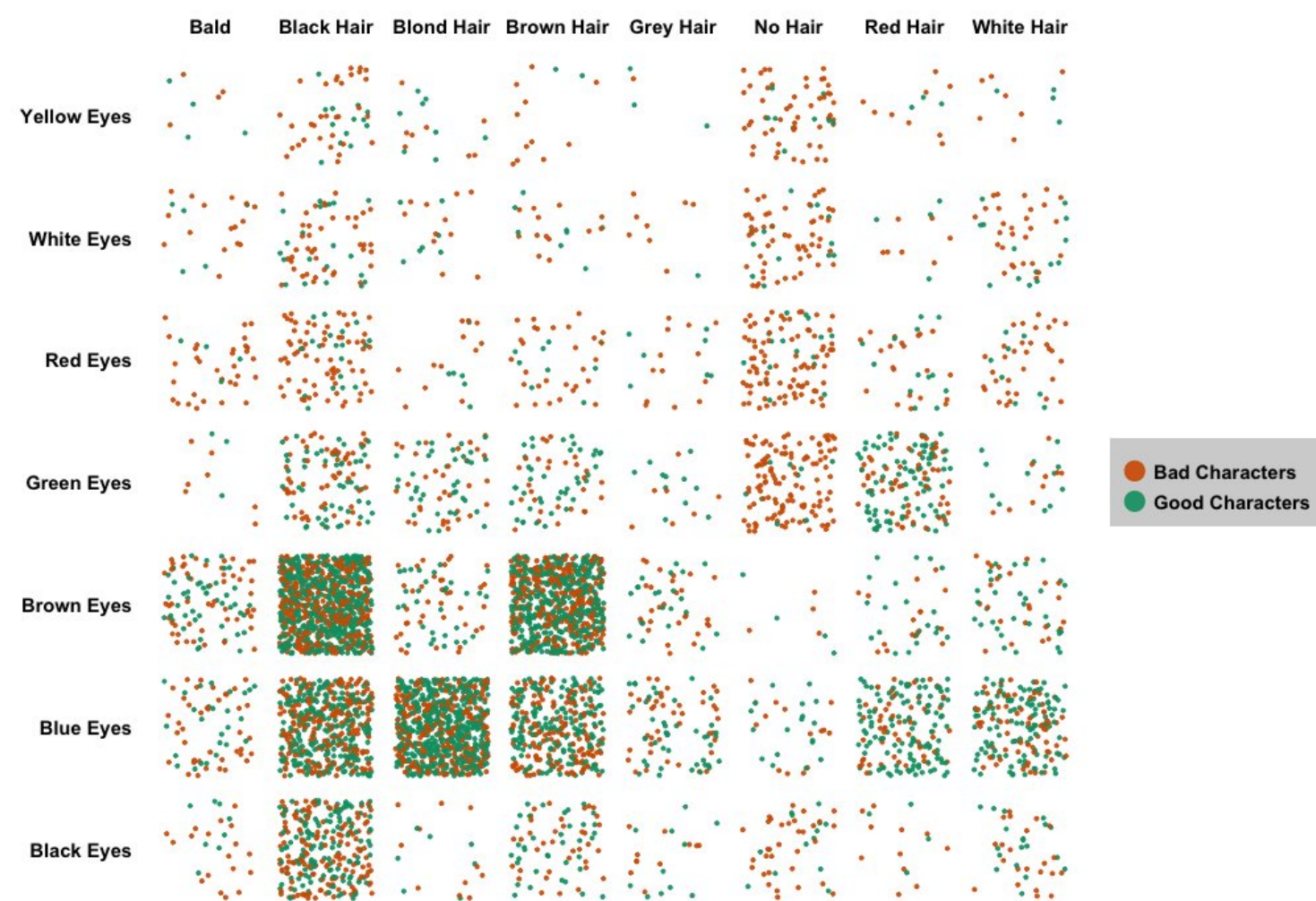
Discover patterns in your data by making it easy to compare and contrast different subgroups of your data

Use `facet_wrap` or `facet_grid` from `ggplot2`

365 Days Cycling in Seattle

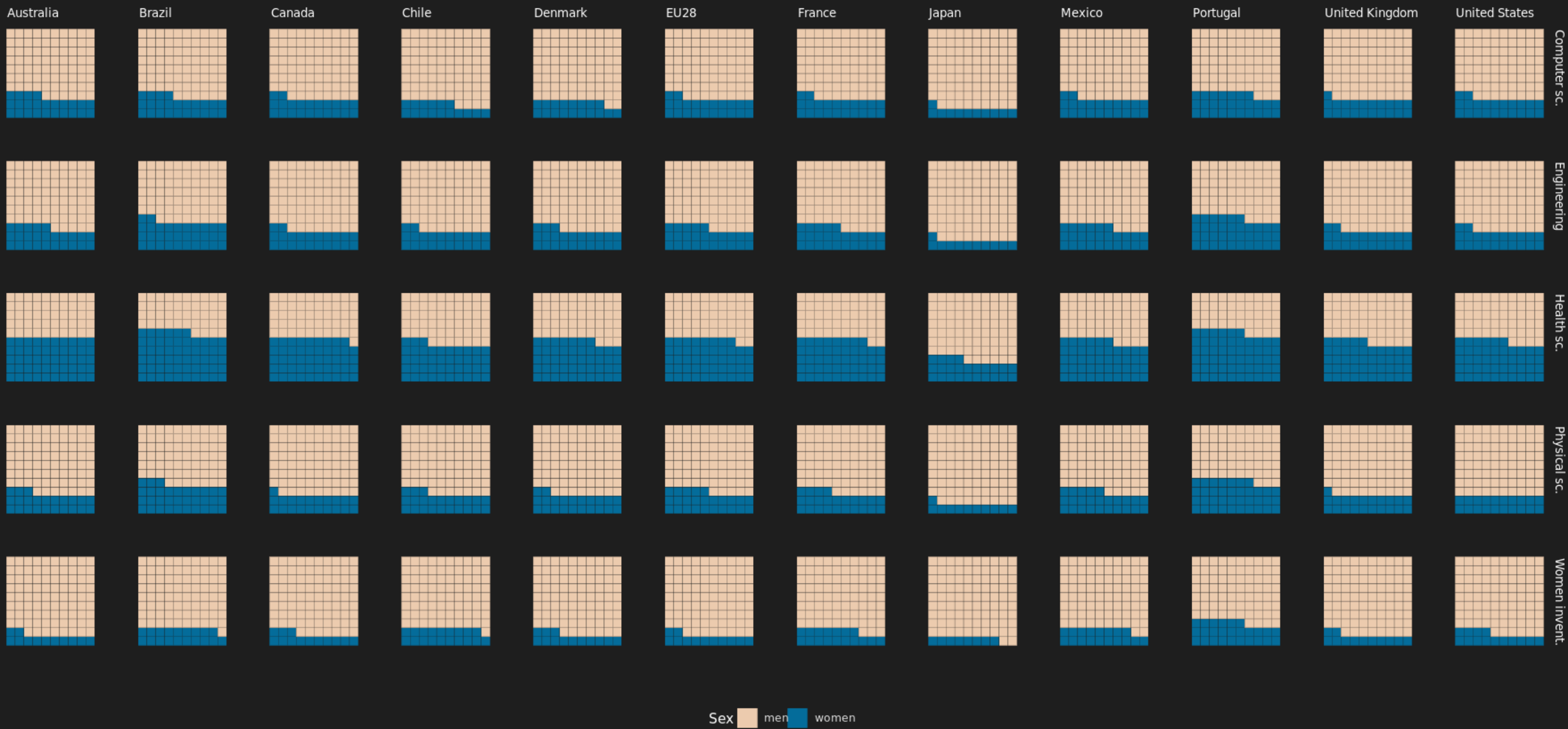
Bicycle traffic crossing 7 detection points in Seattle in 2017.
Also an exercise on making heavily faceted plots with `ggplot2` and `grid` by Otho Mantegazza.





Still a man's world

Women among researchers with papers published 2011-15, & of total in 5 different disciplines



Sources: 'Gender in the Global Research Landscape' by Elsevier; The Economist

12. Maps

Lots of options:

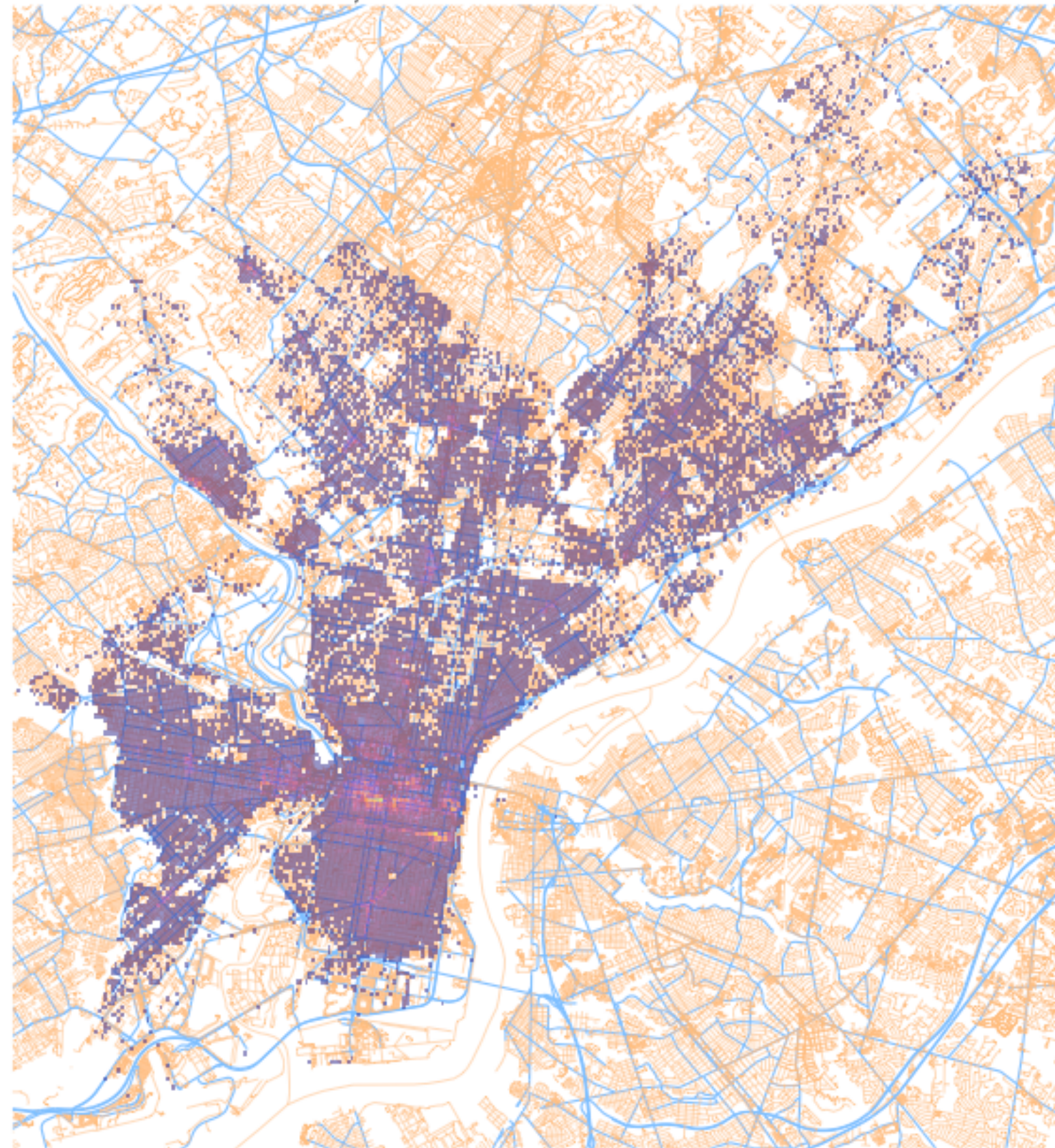
👉 `geom_sf` in `ggplot2`

👉 `maps` package

👉 `osmdata` package

👉 `world tile grid`

PHILADELPHIA, PA



Preferred alcoholic beverages around the world

For countries with at least 10 total servings per capita per year

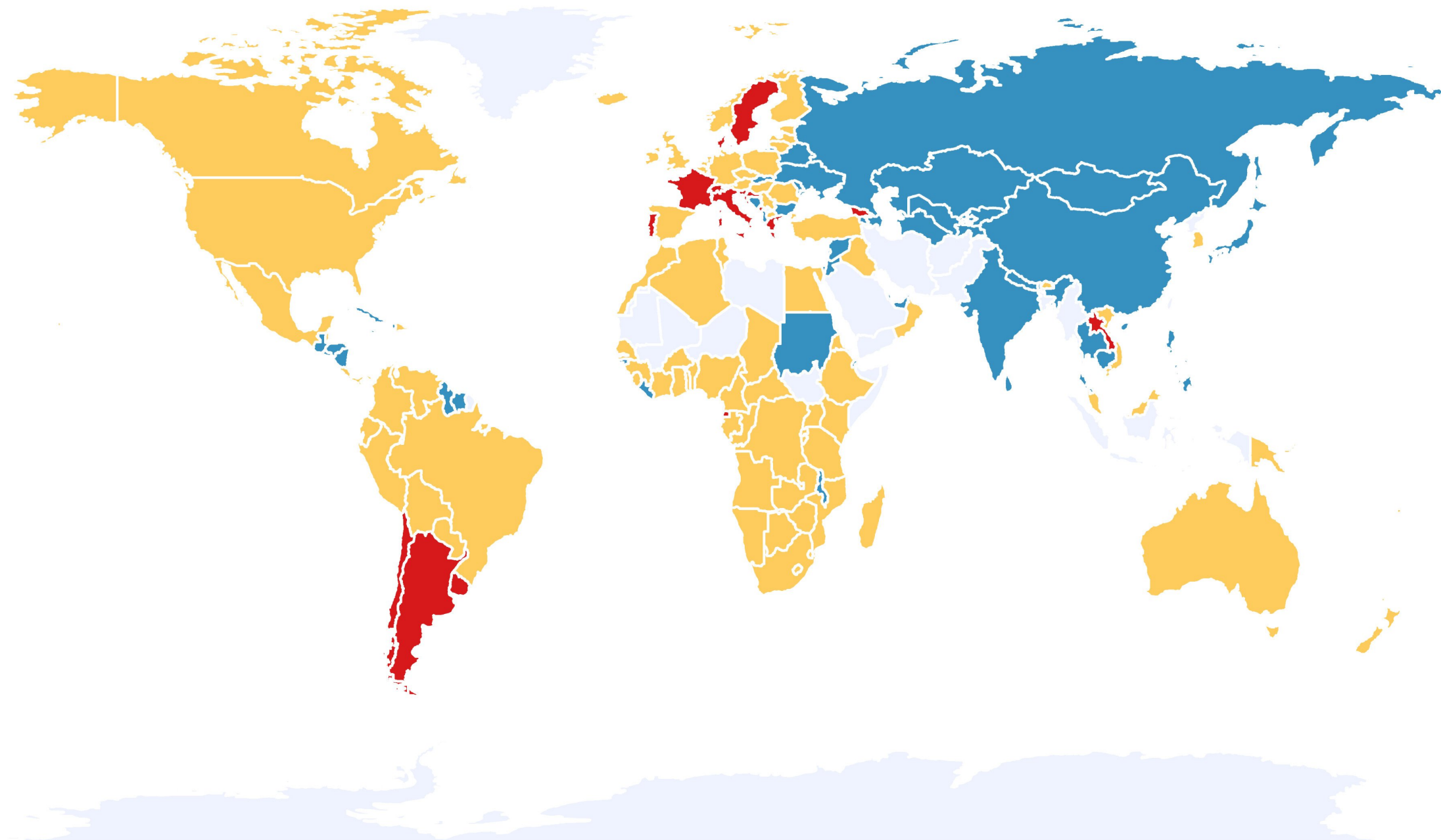
For countries with at least 10 total servings per capita per year

beer

spirits

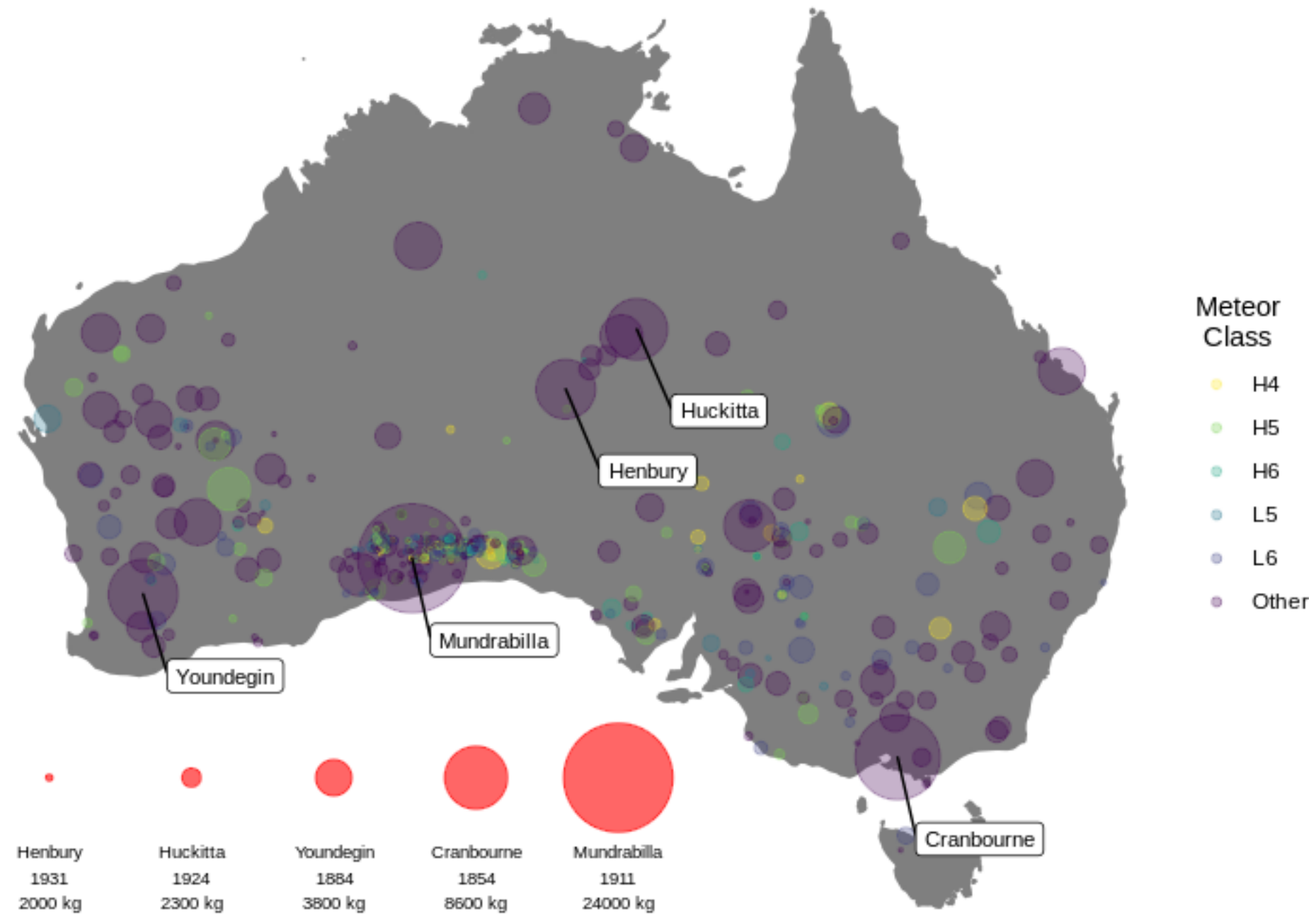
wine

NA



Australian Meteorite Landings

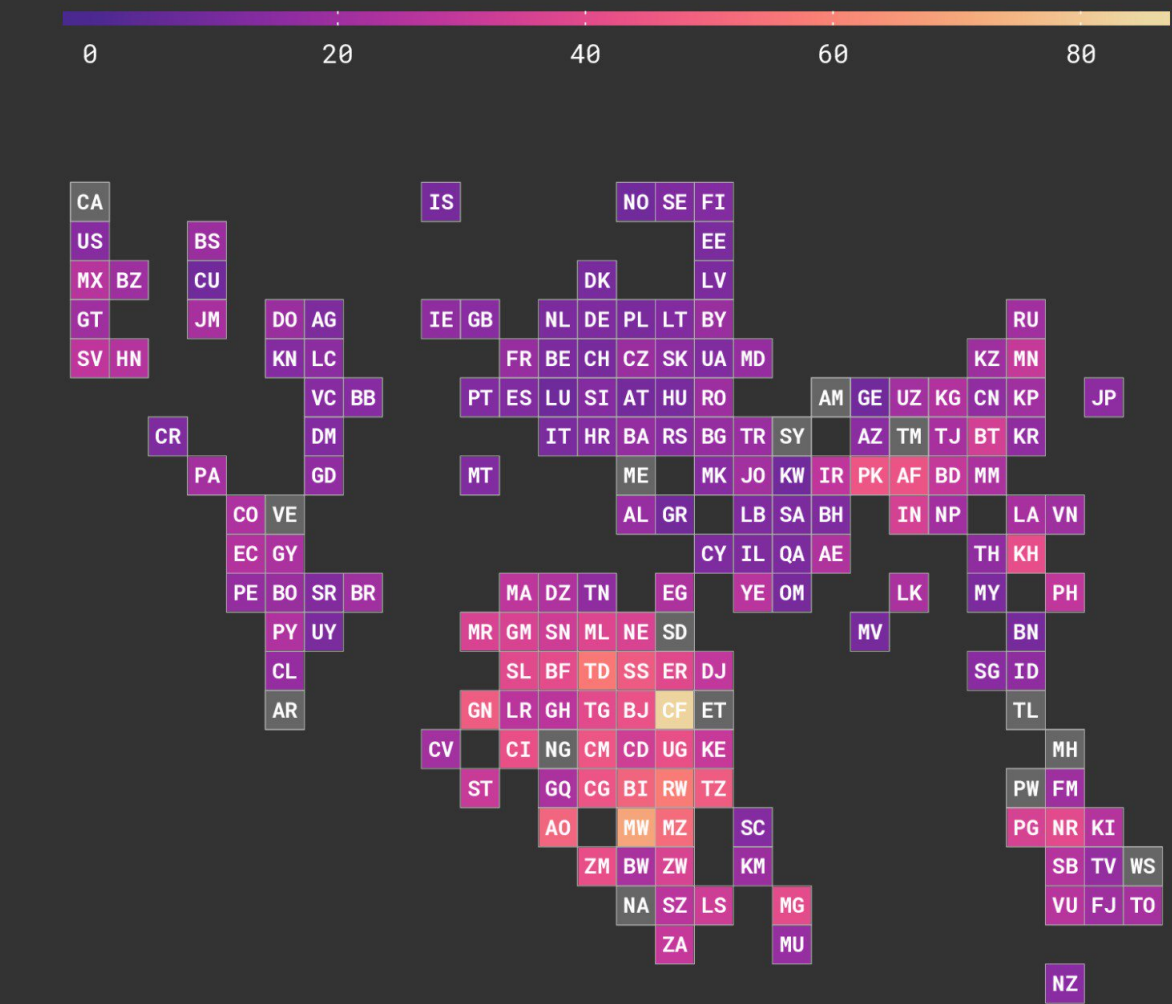
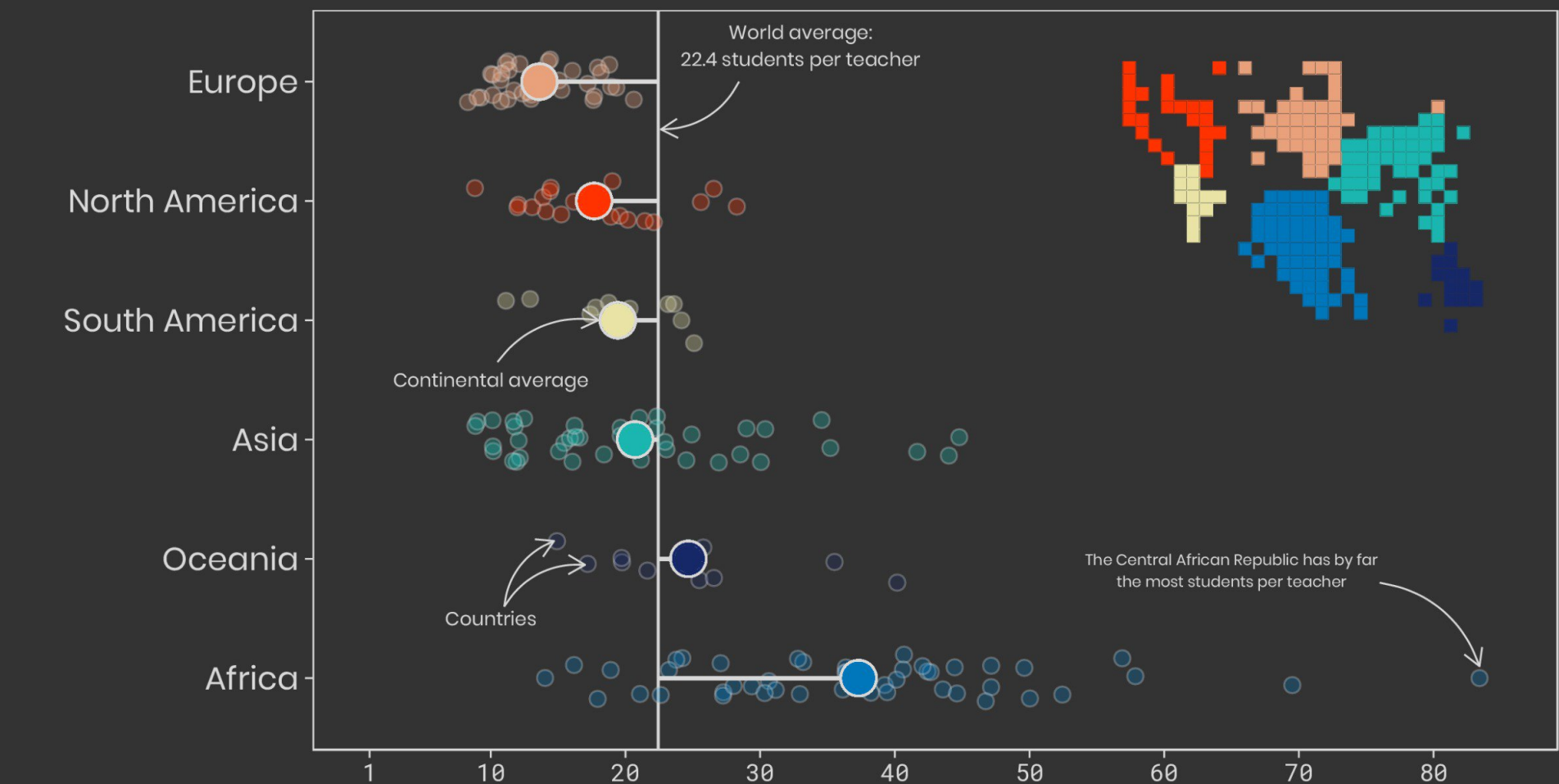
All recorded meteorite landings by NASA



source: <https://data.nasa.gov/Space-Science/Meteorite-Landings/gh4g-9sfh/data>

Global student to teacher ratios in primary education

Latest reported student to teacher ratio per country and continent (2012–2018)

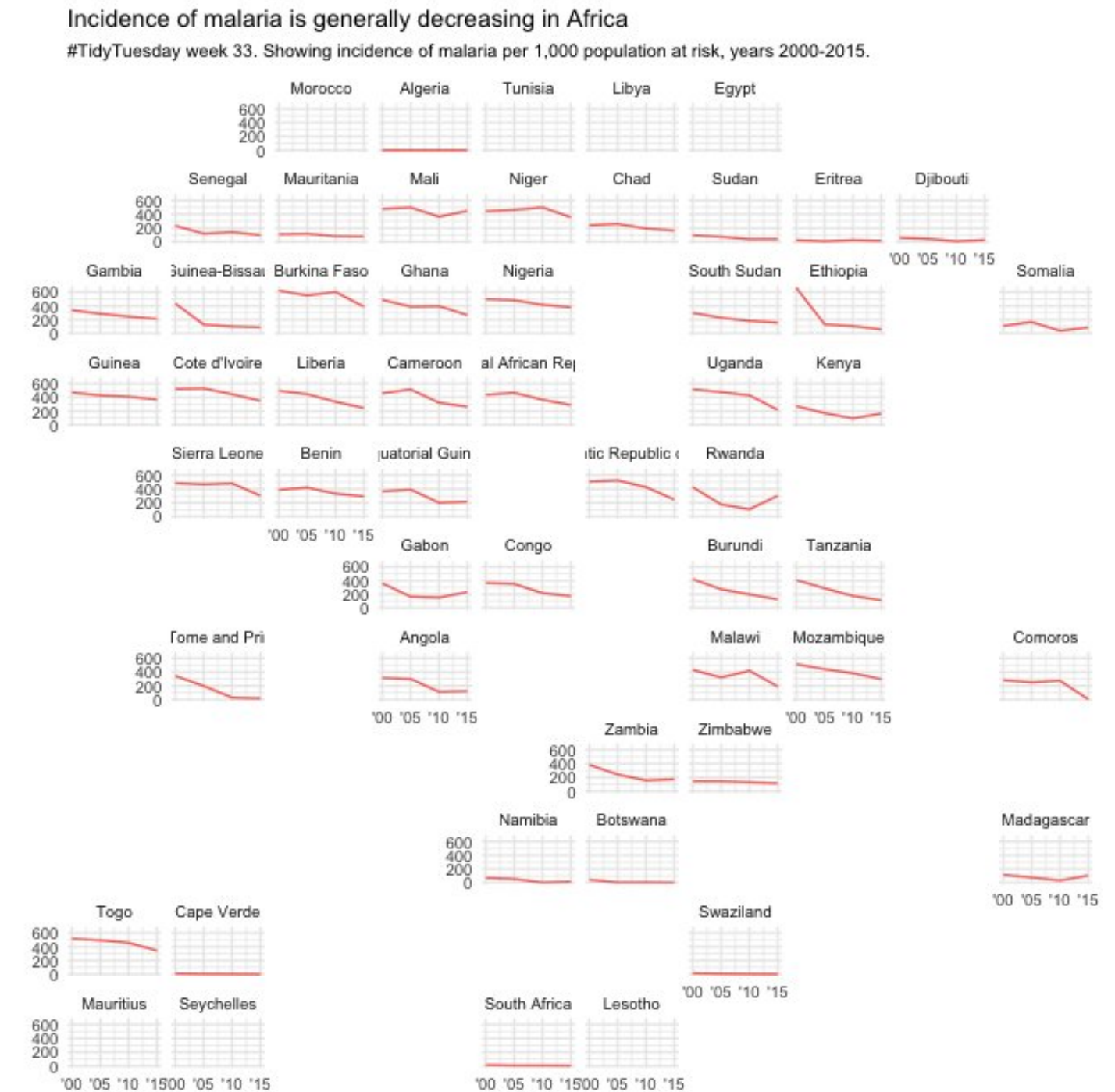


Visualization by @CedScherer | Data: "eAtlas of Teachers" by UNESCO

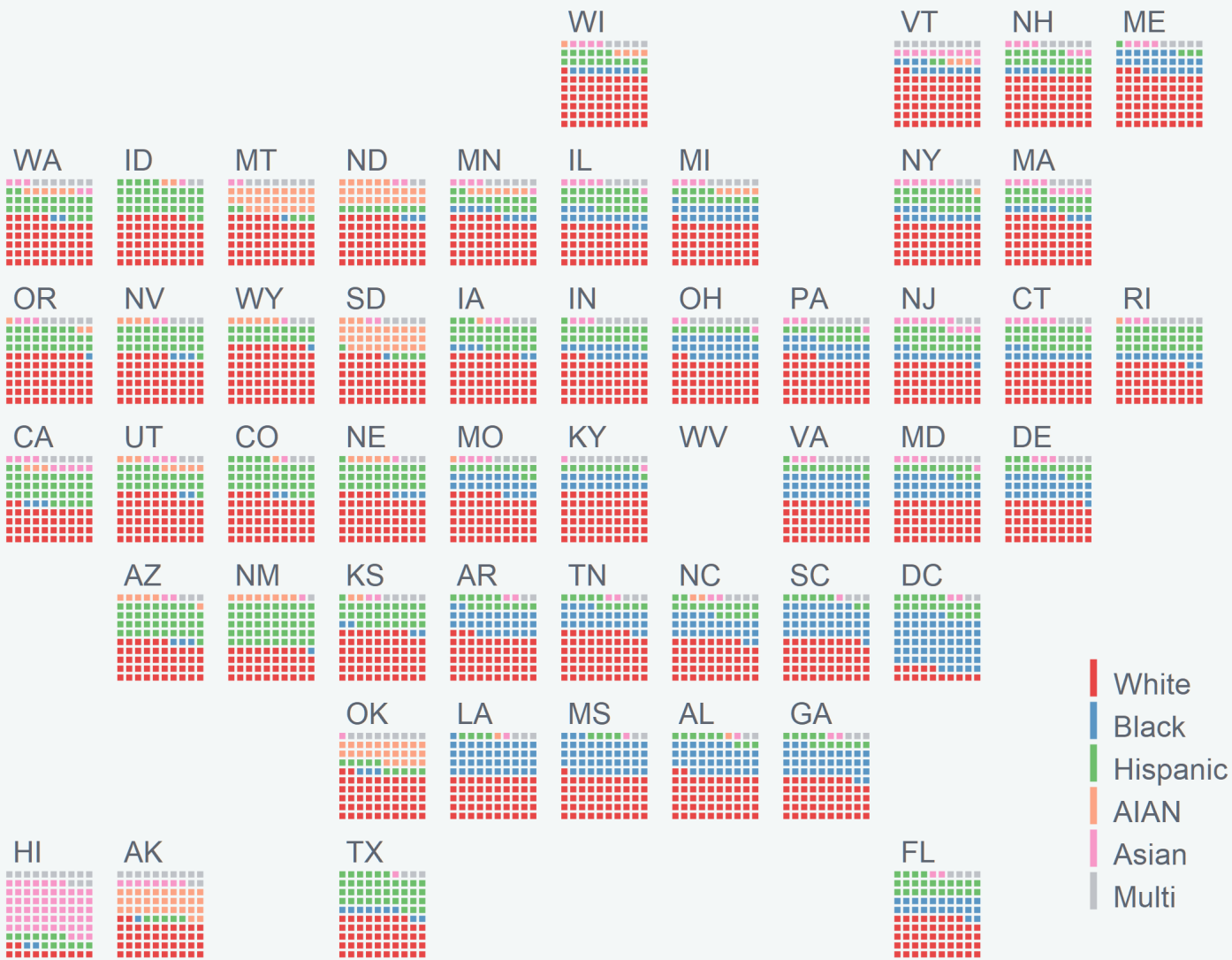
13. Geofacets

Combination of maps
and small multiples

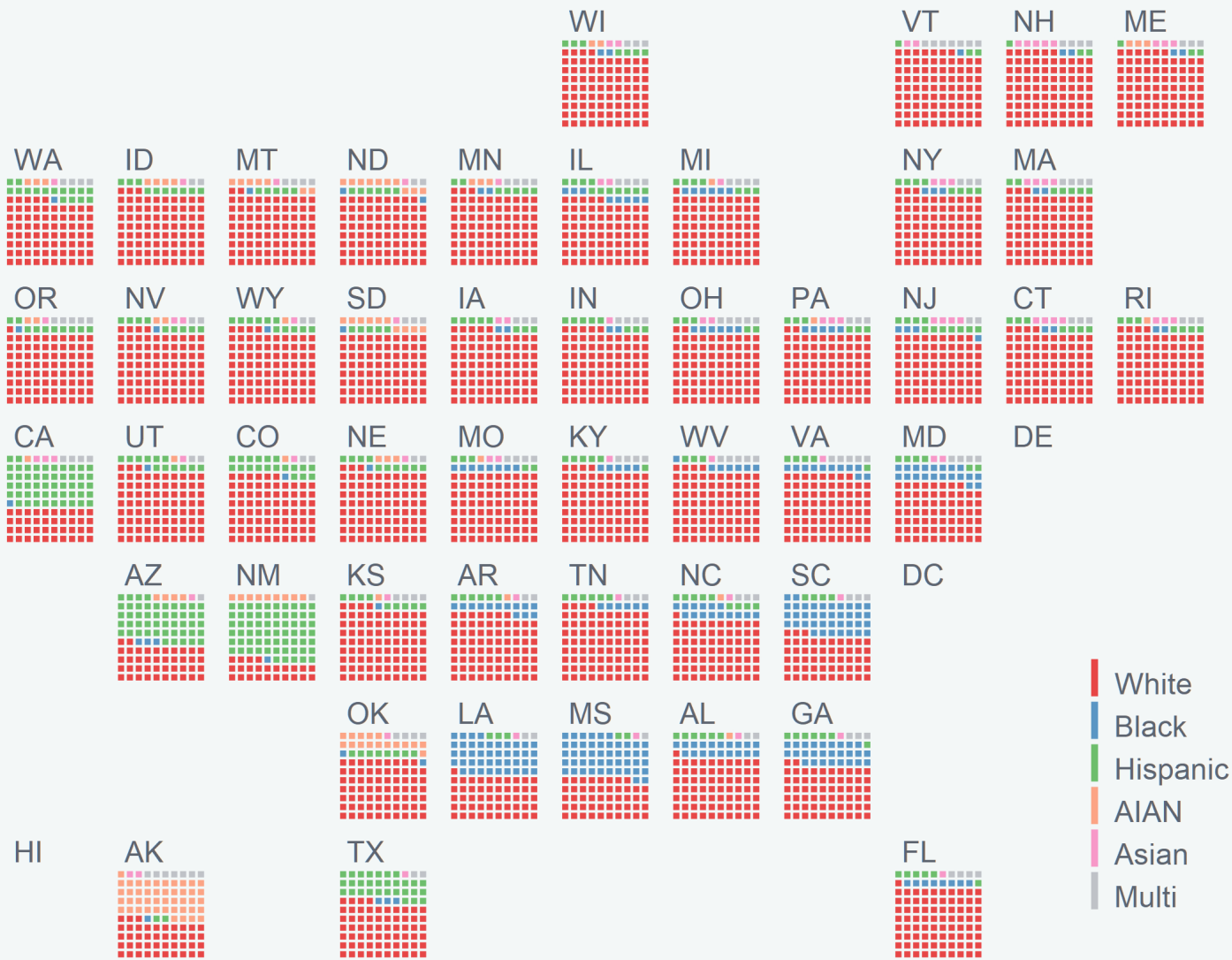
The geofacet package
by [@hafen](#) provides 64
grids, including US
States, European
countries, Chinese
provinces, and more.



Population distribution by race/ethnicity among diverse school districts during 2016-2017

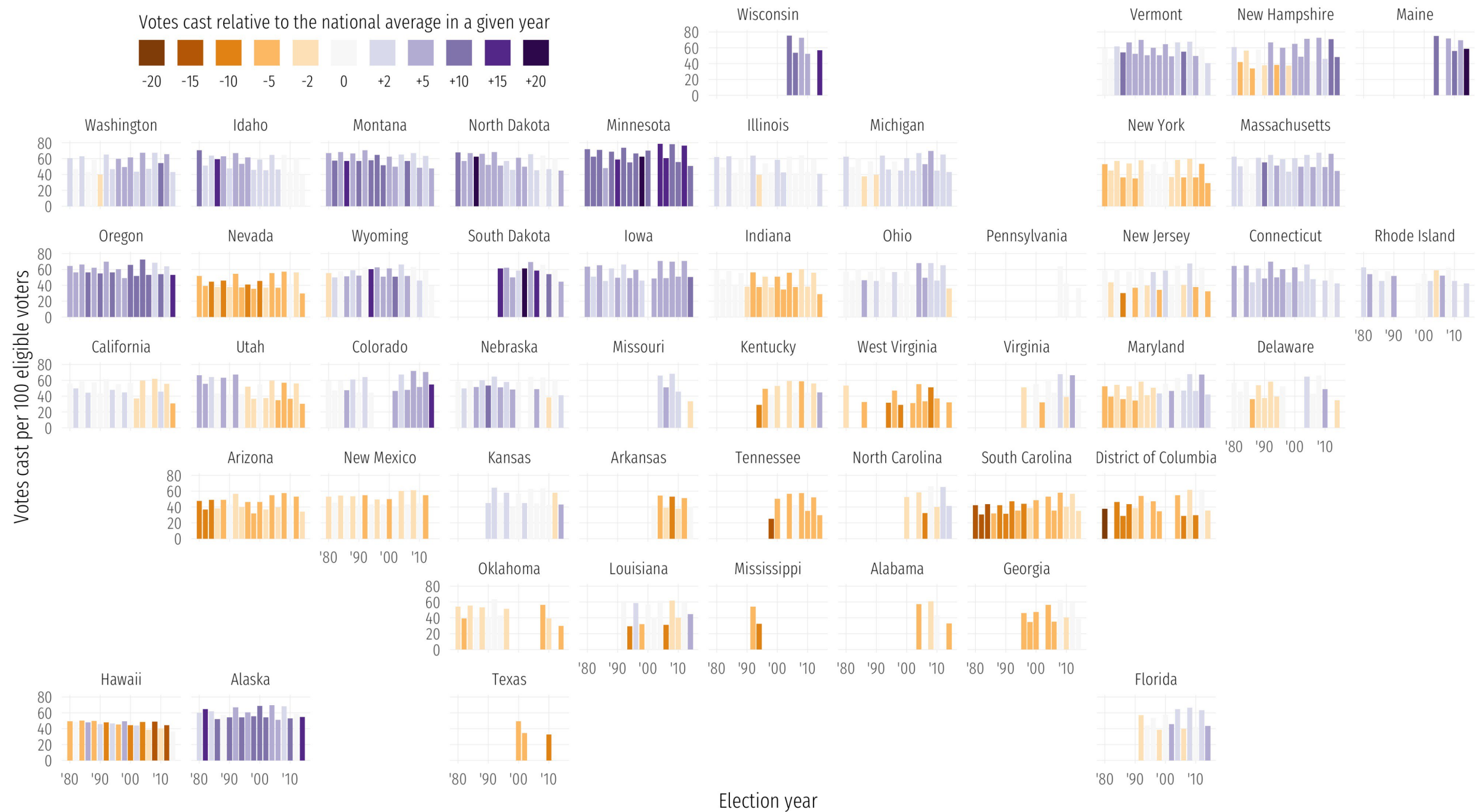


Population distribution by race/ethnicity among undiverse school districts during 2016-2017



Minnesota leads the nation in voter turnout in presidential and midterm elections

Votes cast per 100 eligible voters in each state in presidential (1980, '84, '88, '92, '96, '00, '04, '08, 2012) and midterm (1982, '86, '90, '94, '98, '02, '06, '10, 2014) elections*



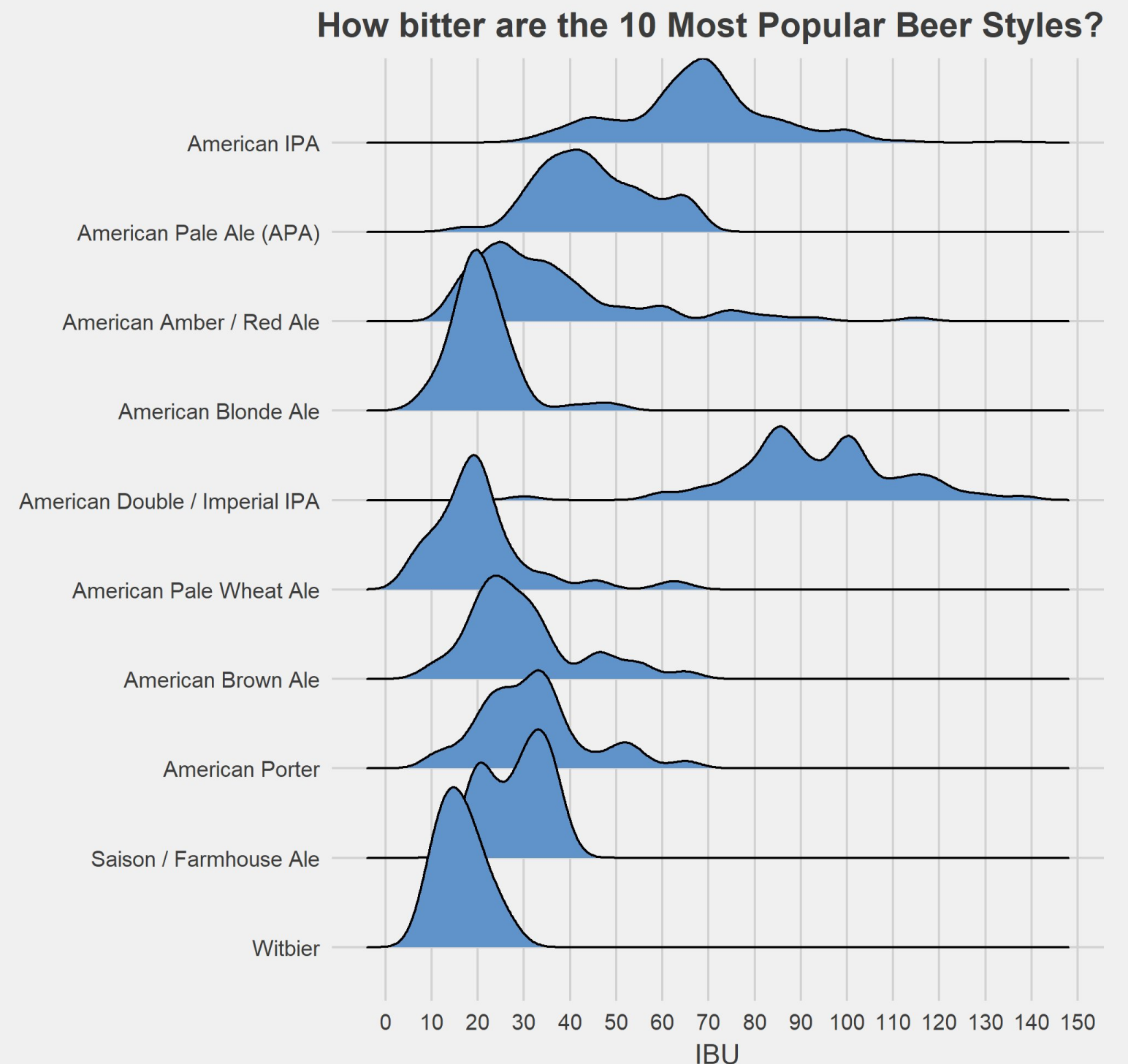
*223 election years in this dataset are missing the number of votes cast, leading to missing bars in many states

Source: data.world | Graphic: @nsgrantham

14. Ridgeplots

Implemented with the `ggridges` package by [@wilkelab](#)

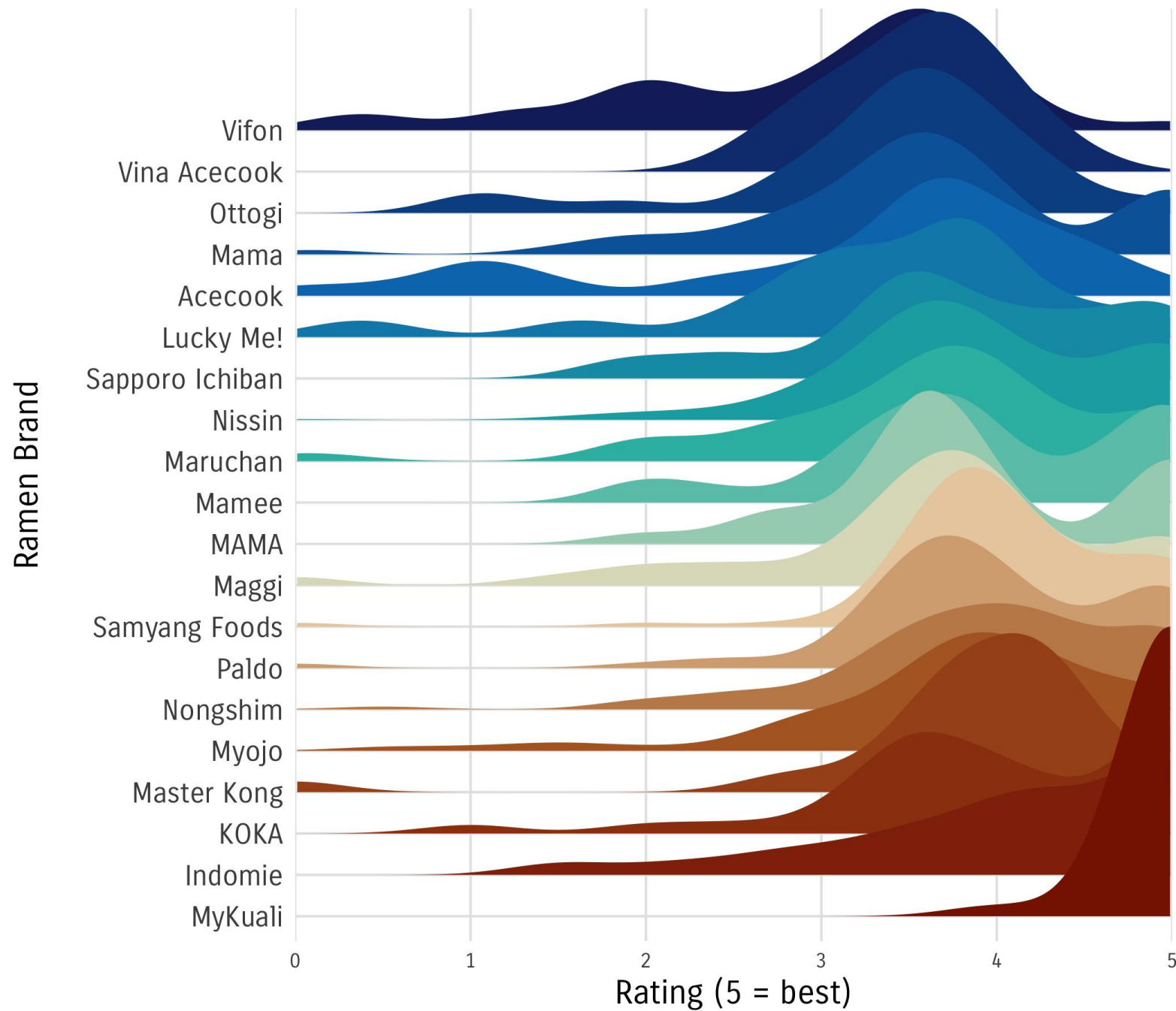
Formerly known as "joy plots" because of their similarity to [Joy Division's Unknown Pleasures](#) album



@Joe_Stoica

Ramen ratings by brand*

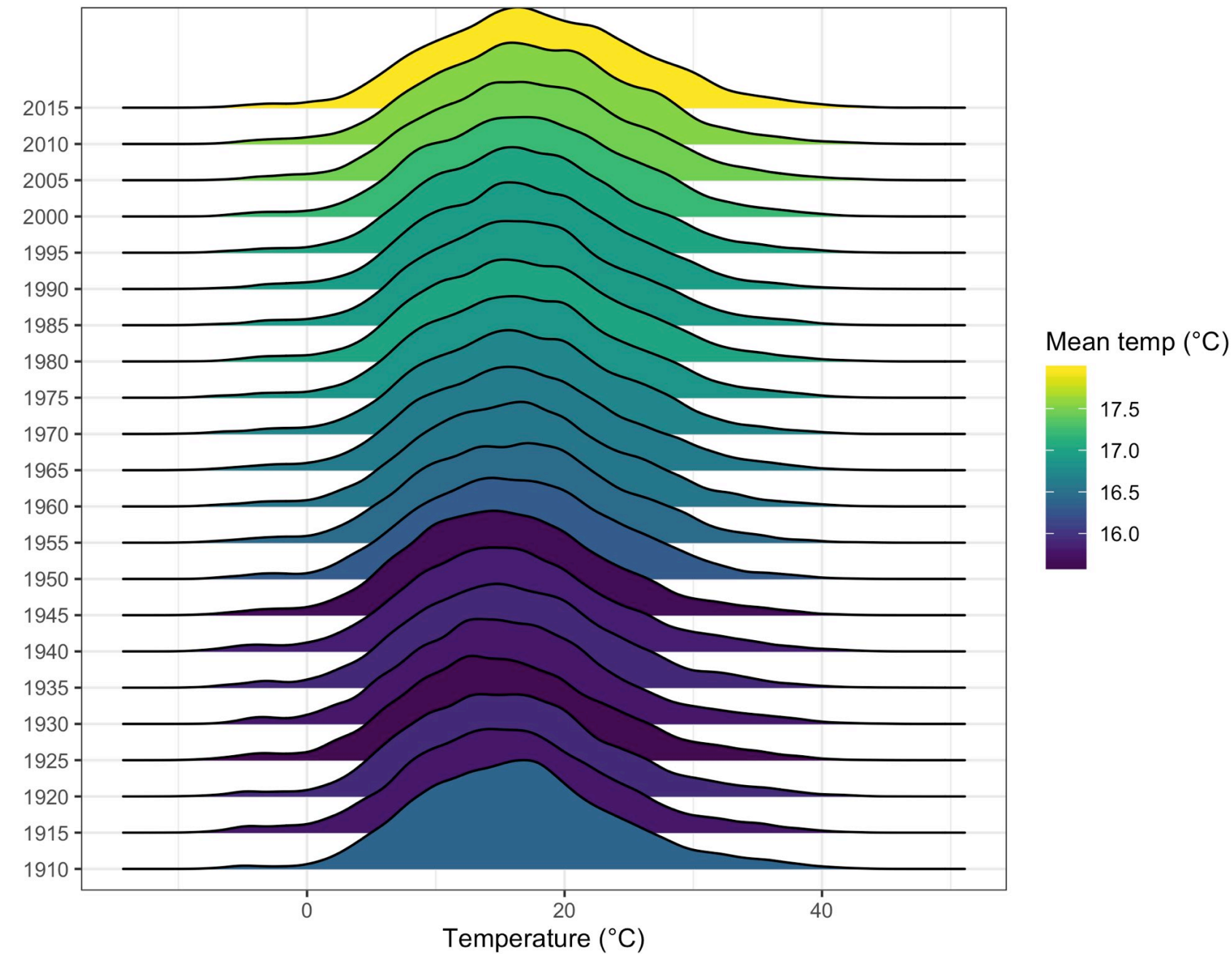
Data from The Ramen Rater



*for 20 brands with most observations (n) in dataset

Distribution and mean of the maximum daily temperatures in Australian cities*

*Perth, Port Lincoln, Kent Town, Brisbane, Sydney, Canberra, and Melbourne



Source: Australian Bureau of Meteorology
@cbrems73 - #TidyTuesday



Ramen Ratings by @allison_horst (left) and

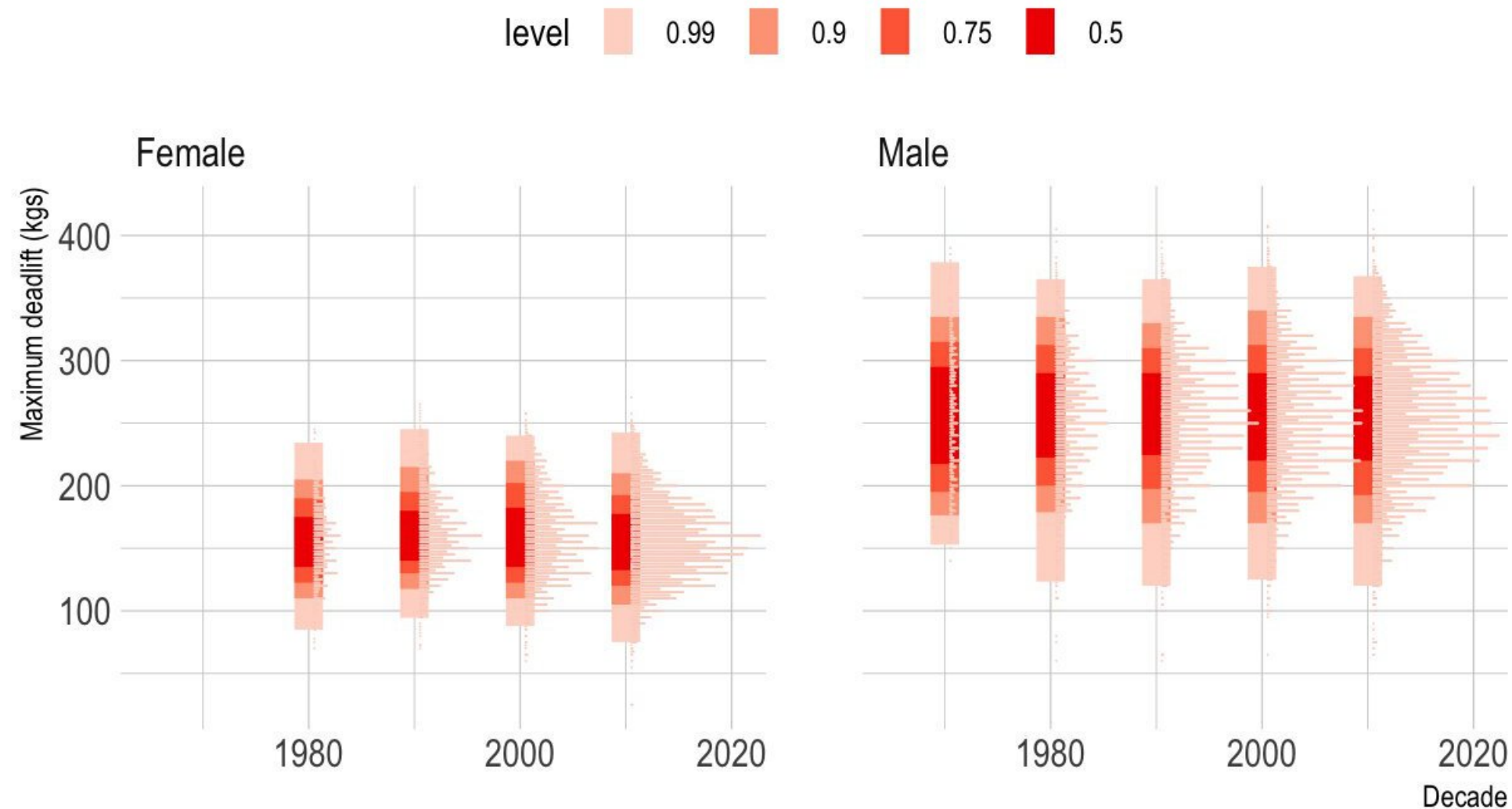


Australian Fires by @cbrems73 (right)

15. Uncertainty distributions

Distribution of maximum deadlifts by gender and decade

Deadlifting ability hasn't changed much within gender across decades



International powerlifting

Maximum weight lifted with different equipments and weightlifting types



Plot by @_Gil_Henriques for #TidyTuesday. Data from Open Powerlifting.

16. Radial plots

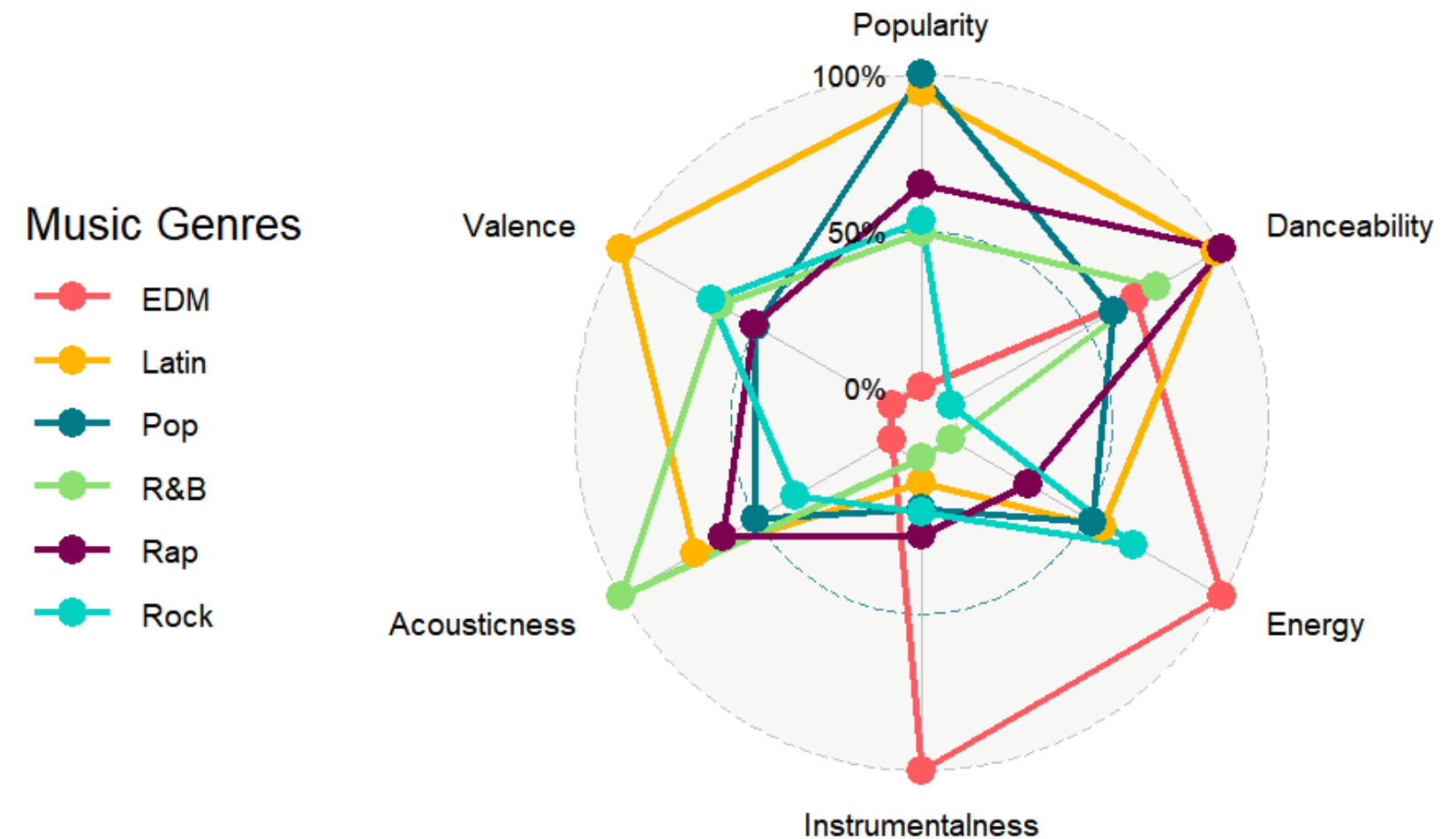
There's a lot you can do with 360°

👉 Radar graphs

👉 Petal charts

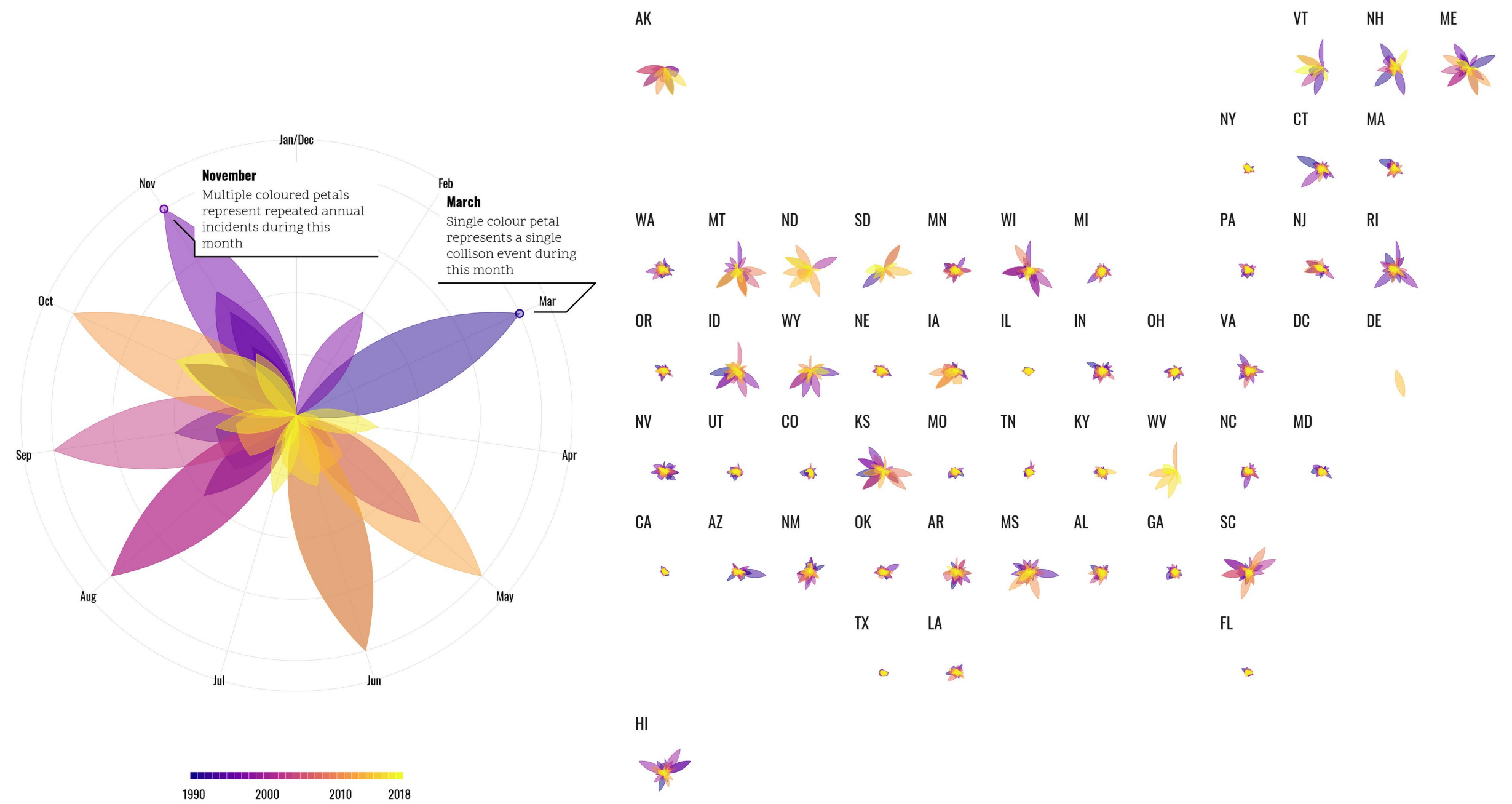
👉 Clock histograms

Music Properties on Spotify



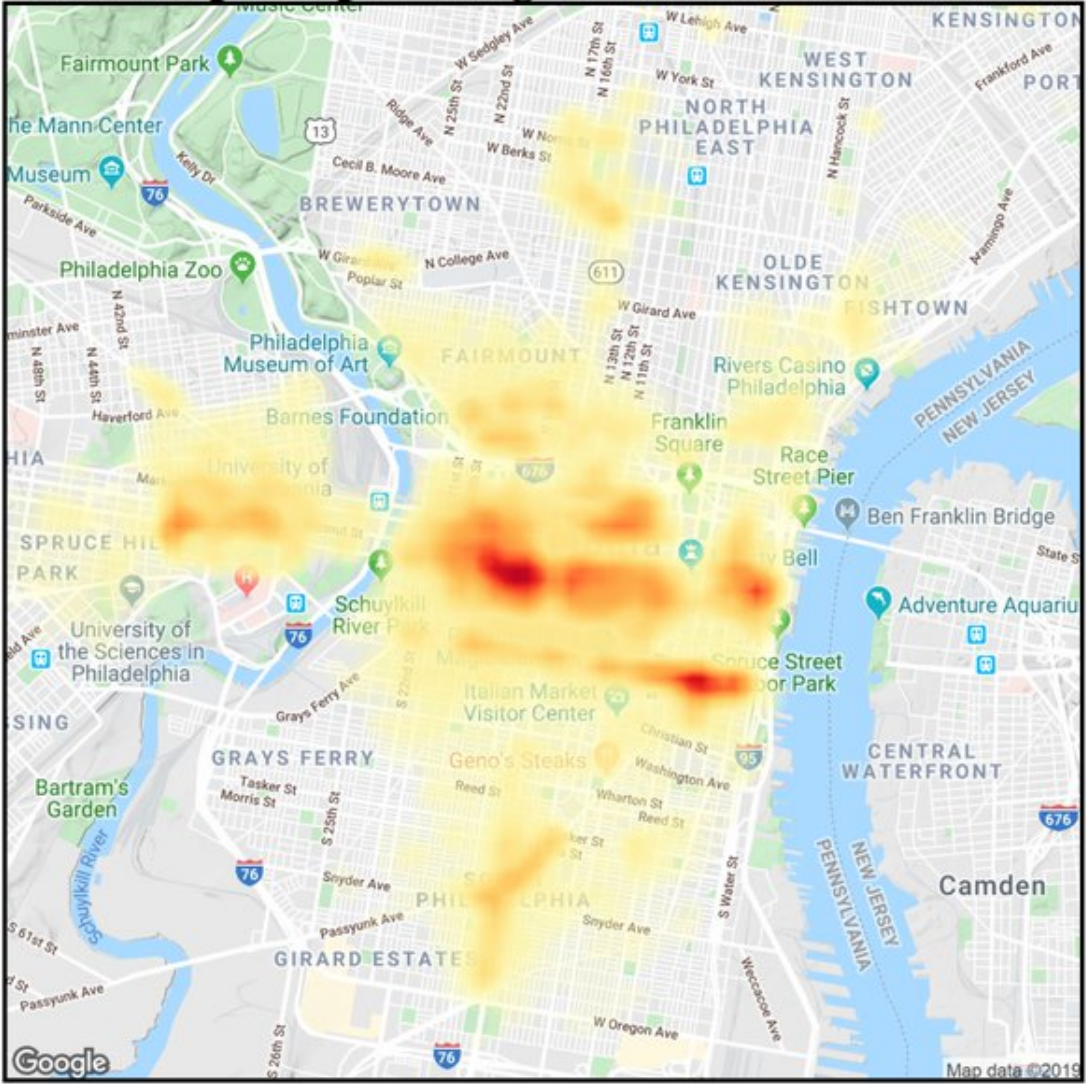
Seasonality of Wildlife-Aircraft Collisions by State

Presented below is a petal chart of of wildlife collisions, with an inset legend showing assisting interpretation. Wildlife collisions at by state are presented as small multiples, geographically arranged. Smaller compact flowers illustrate states with collisions occurring year round, while the bigger flowers tend to see single or concentrated spikes of collision activity. Flowers with diverse colours indicate repeated annual collisions while the single-hued flowers illustrate more sparse or isolated annual events.

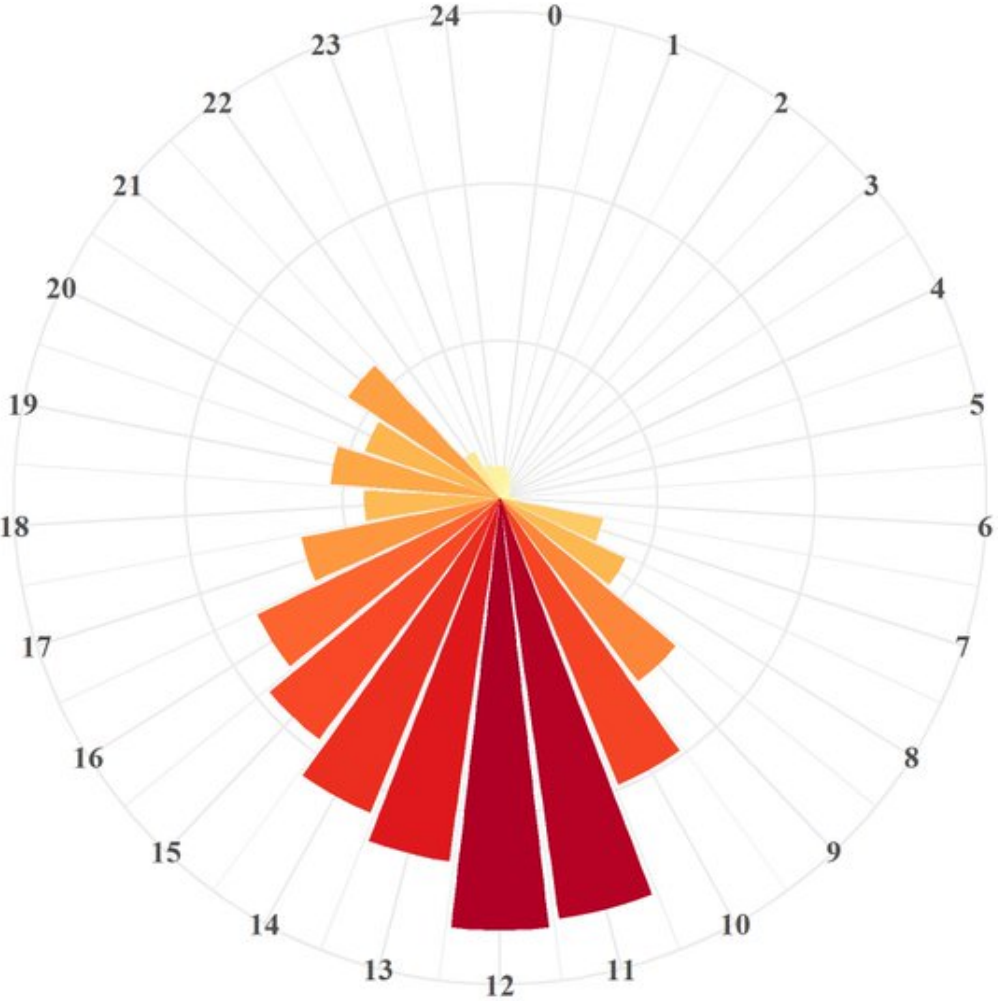


Data: FAA Wildlife Strike Database | Graphic: @jakekaupp

Philadelphia parking tickets issued in 2017



Number of tickets by hour of day



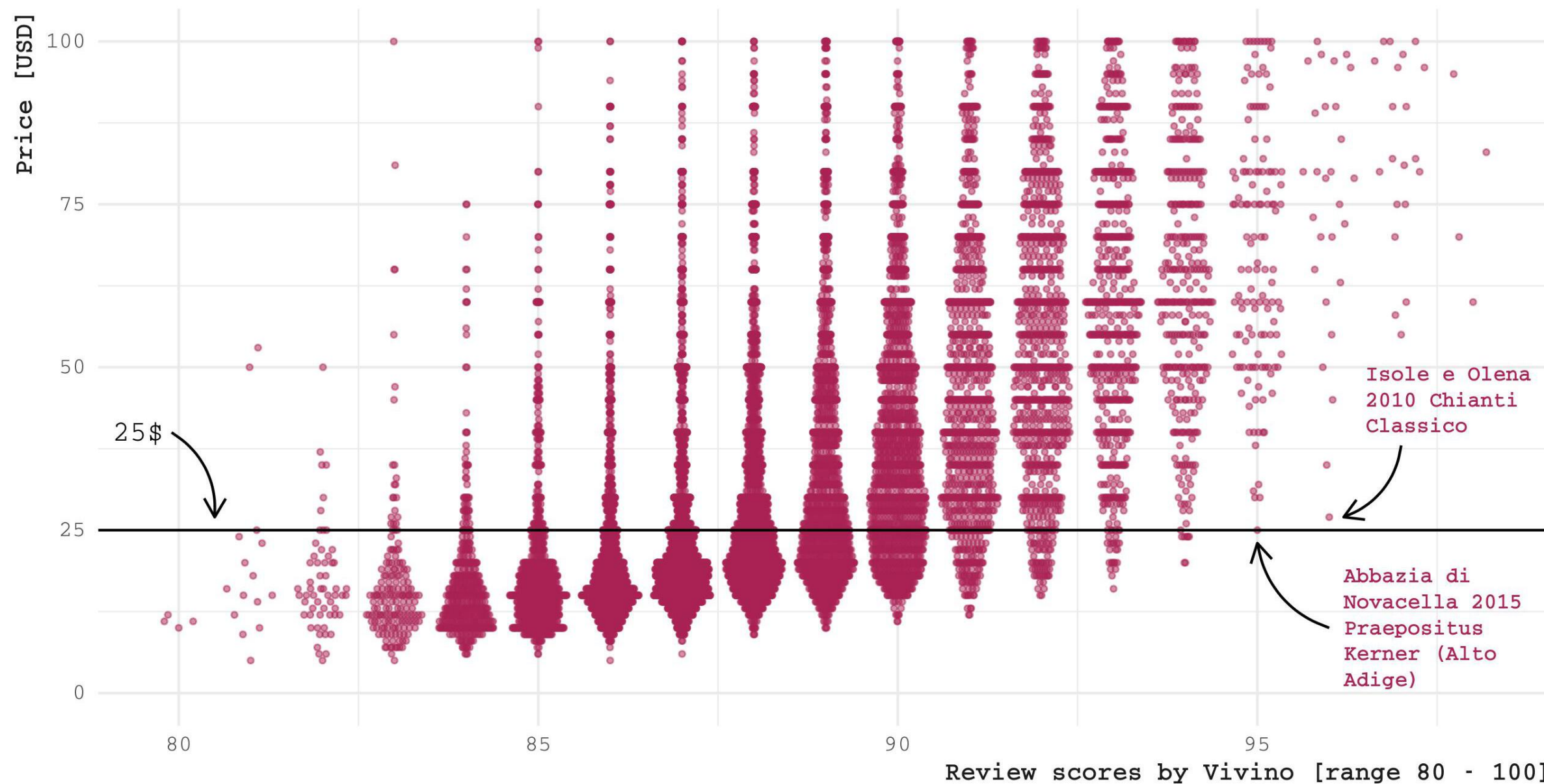
Data: Open Data Philly | @Amit_Levinson



17. Beeswarm Plots

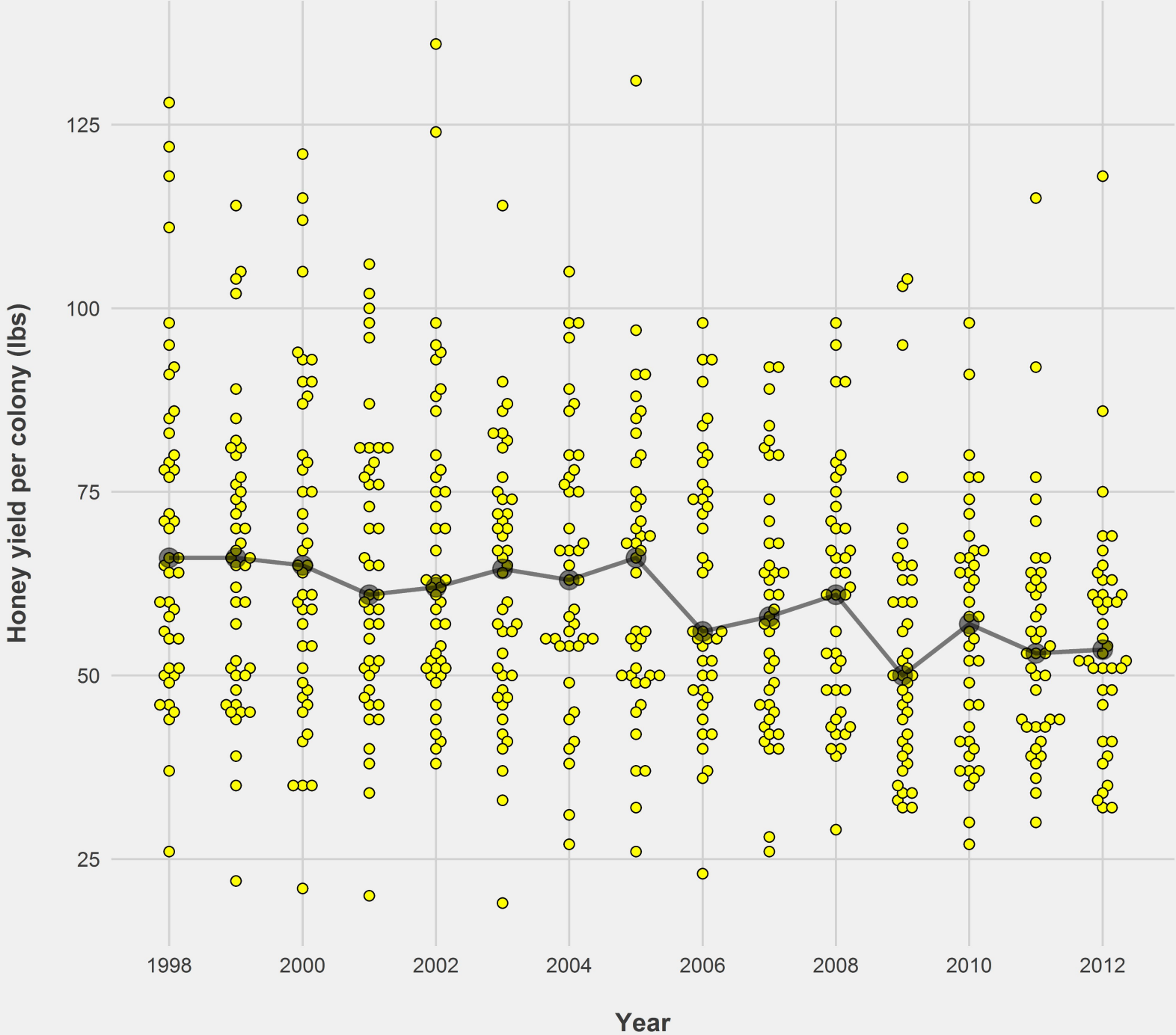
Price of Italian Wine by Score

According to Wine-Enthusiast. Only Italian wines priced less than 100 \$ are shown.



Beekeepers are shifting from honey production to pollination

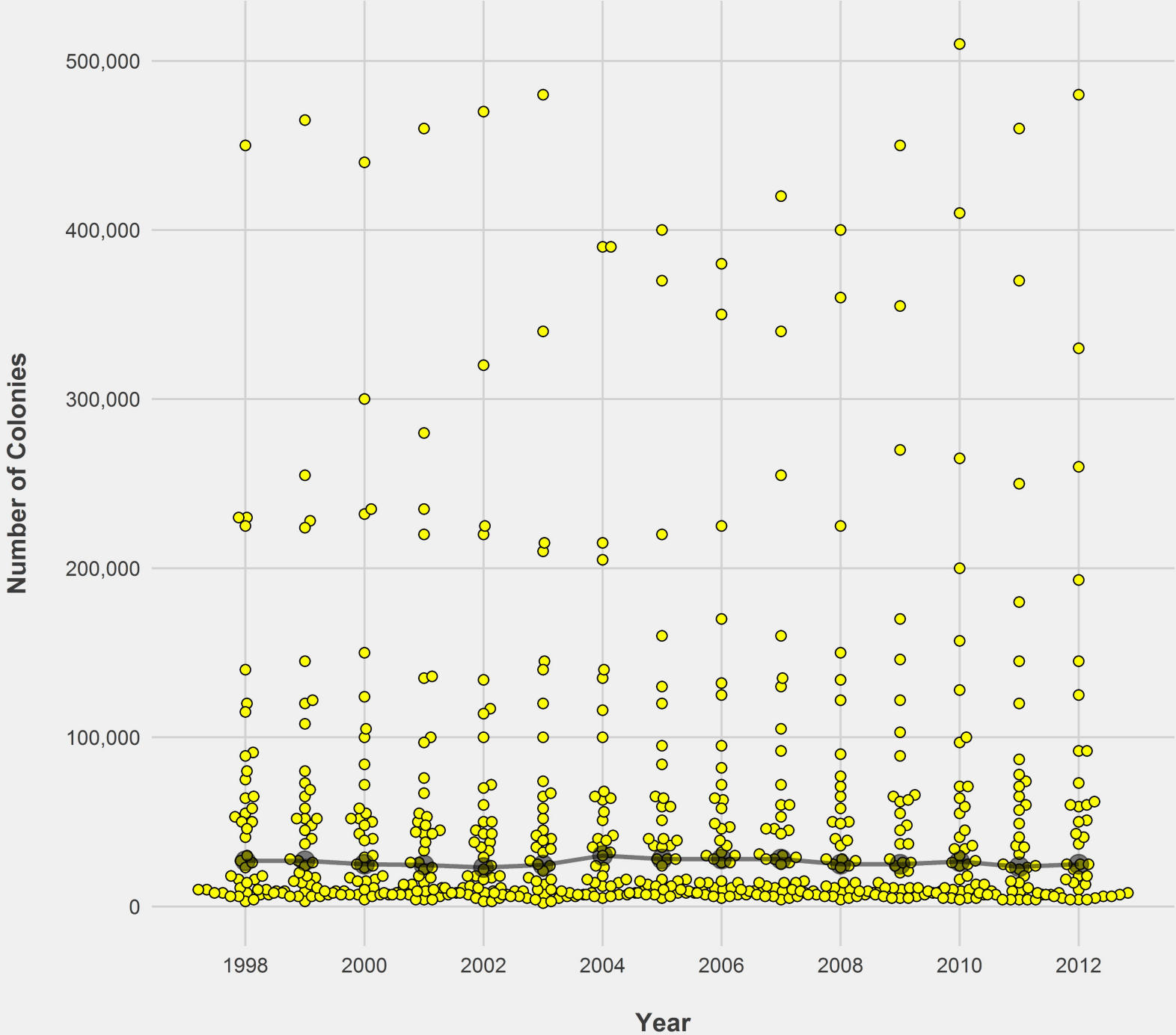
Beekeepers are collecting less honey per colony



Data: USDA-NASS | Graphic: @thomas_mock

Beekeepers are shifting from honey production to pollination

The number of colonies is relatively stable over time



Data: USDA-NASS | Graphic: @thomas_mock

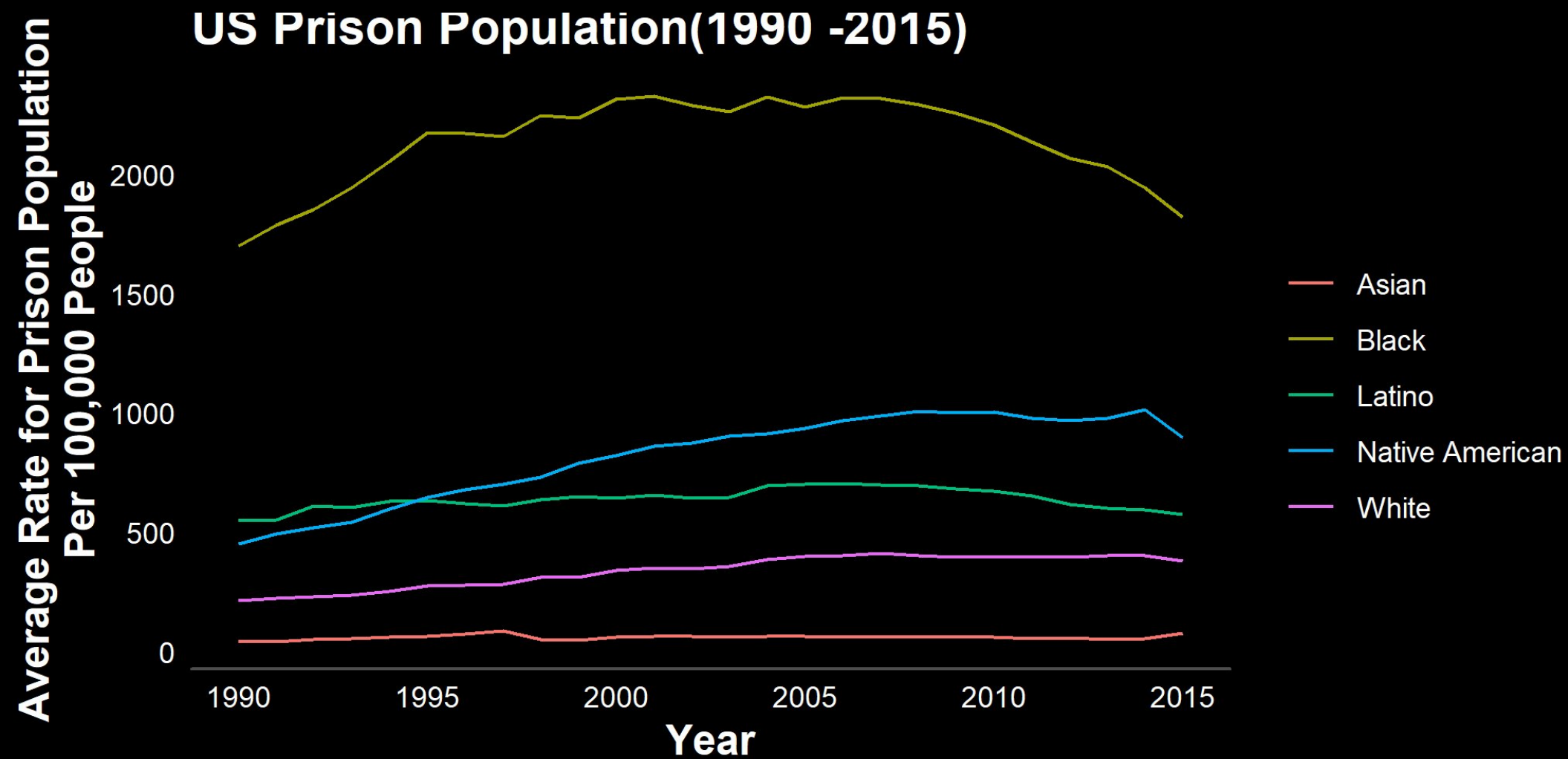


U.S. Horror Film Ratings by Budget (2012-2017)



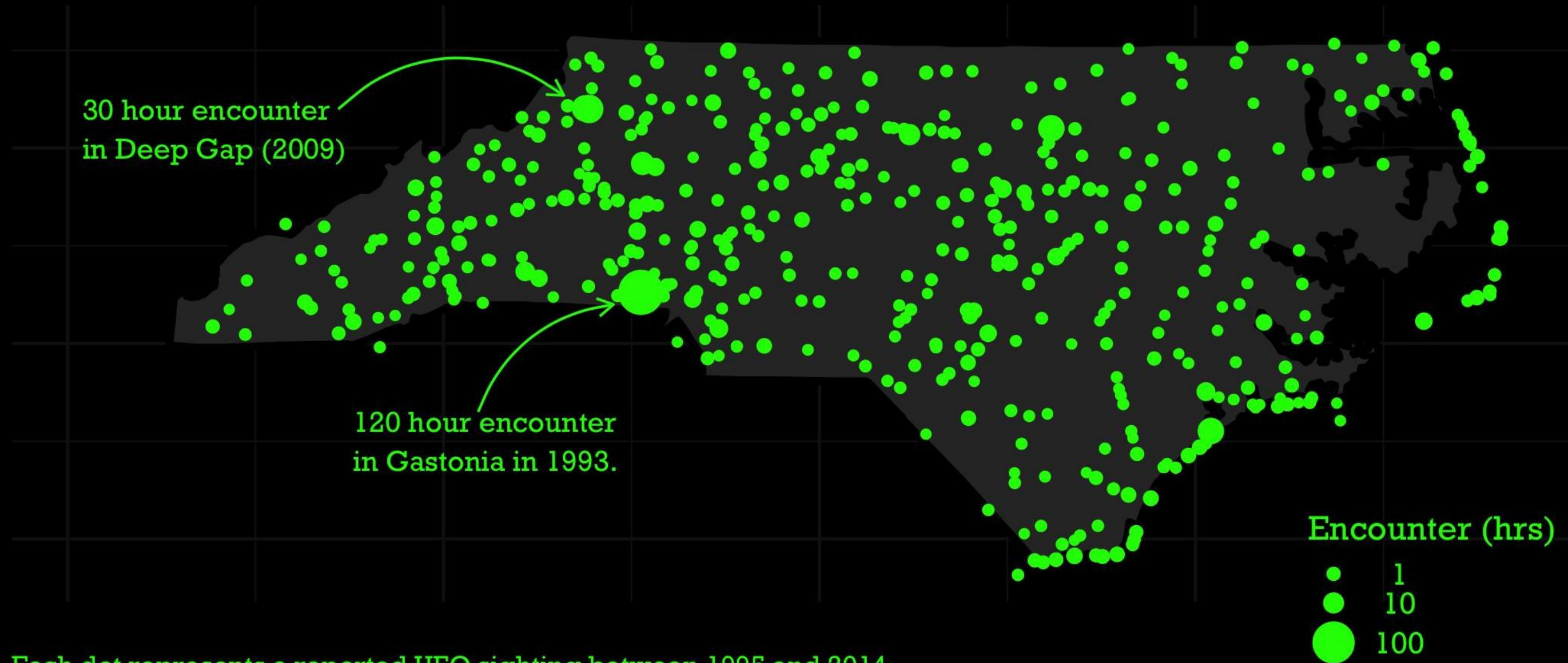
Source: IMDB (2017)
Design: Jenna DeVries | Twitter: @jennaldevries
Created for #TidyTuesday

18. Dark Mode



Source: Vera Institute
Plot by @kigtembu

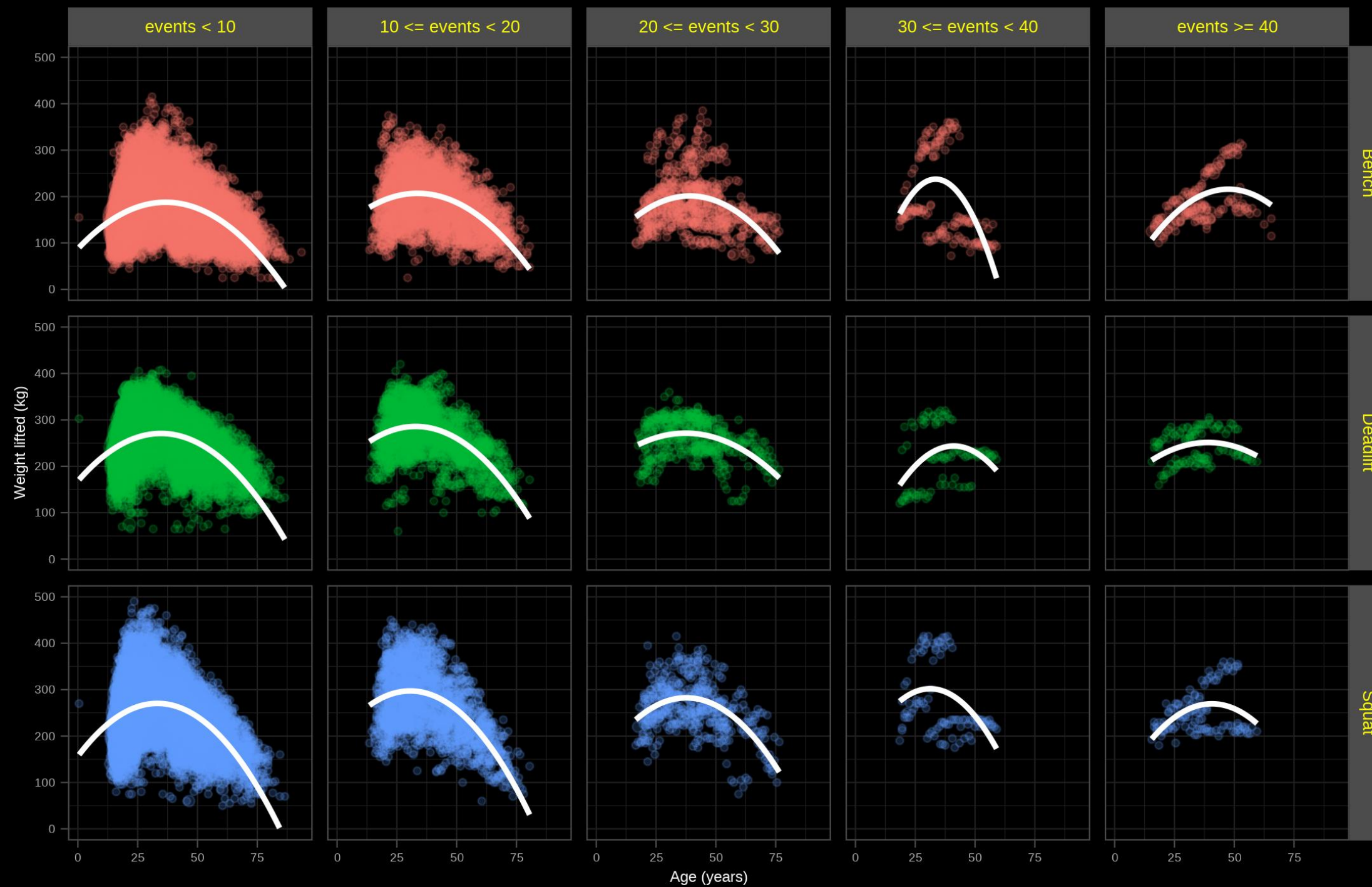
UFOs over North Carolina



Each dot represents a reported UFO sighting between 1995 and 2014.
Source: National UFO Reporting Center | Visualization: Joel Soroos @soroosj

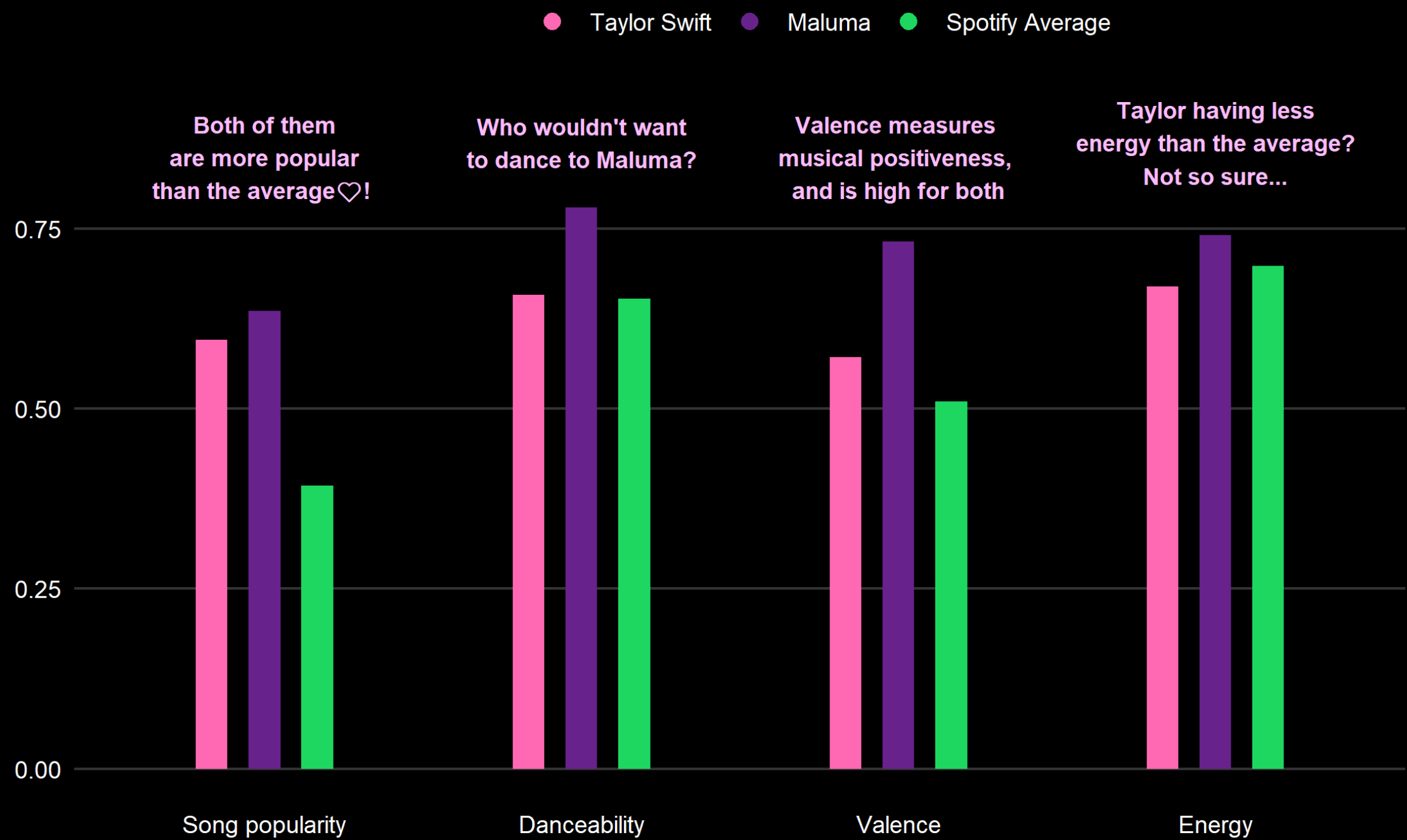
Changes in male athletes weight-lifting capacity with age

By number of competition events attended, and type of lifting



#TidyTuesday, International Powerlifting, 2019-10-08 // @jmcastagnetto, Jesus M. Castagnetto

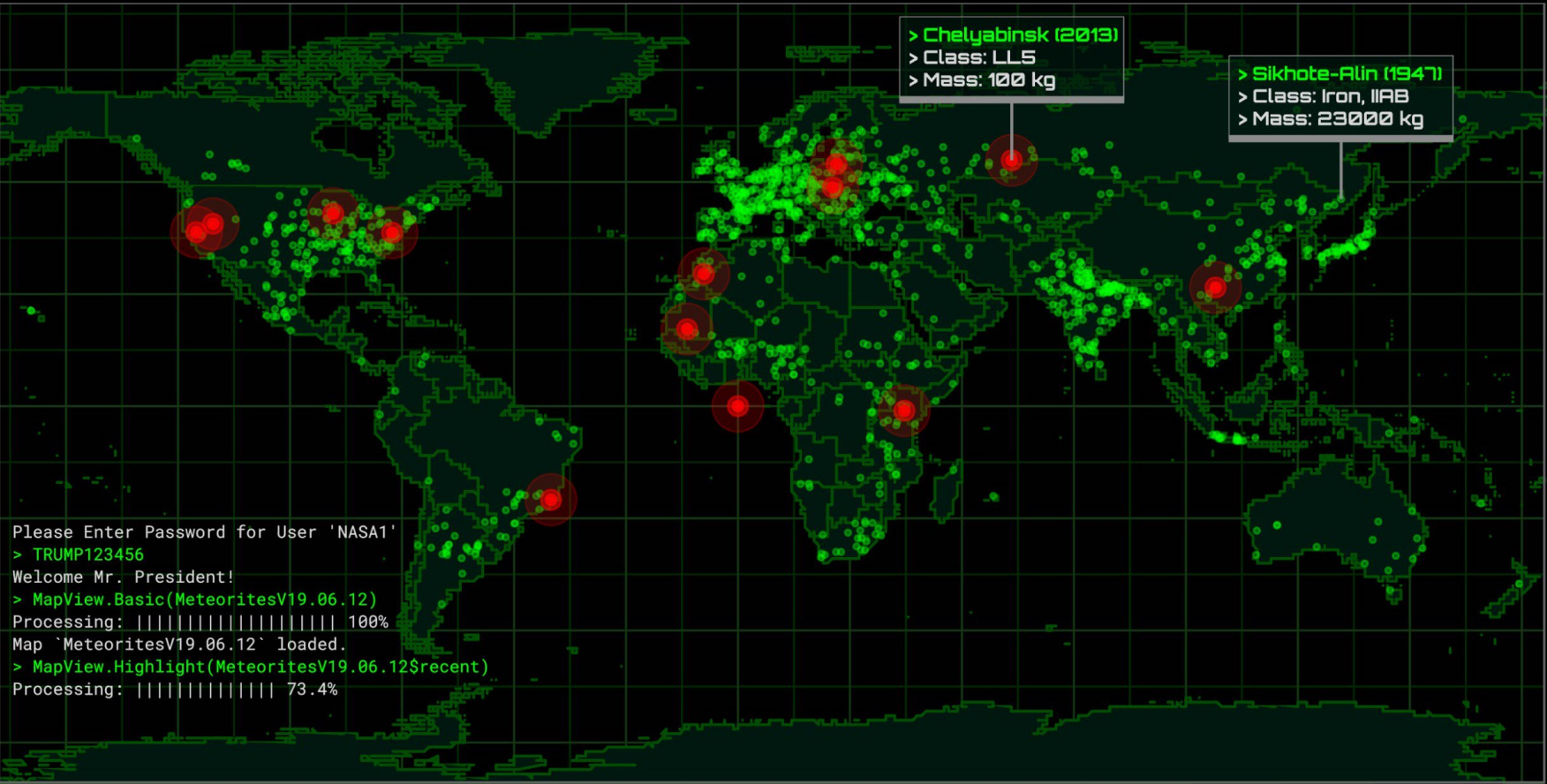
How similar are Maluma and Taylor Swift?



#tidytuesday by @ariamsita, data: spotifyr package
Plot based on information about 13 songs by Maluma and 21 by Taylor Swift.

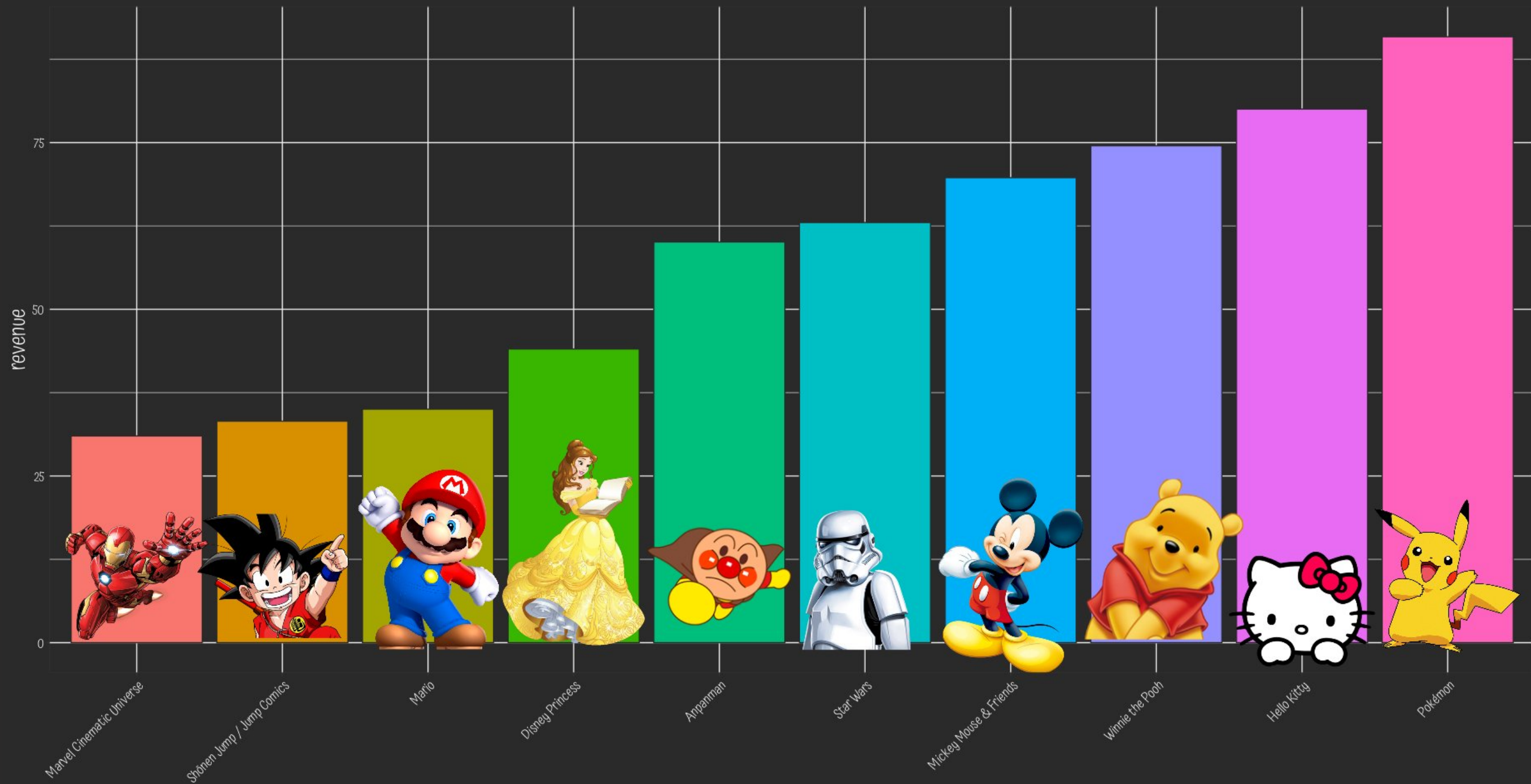
19. Fun with ✨ Customization ✨

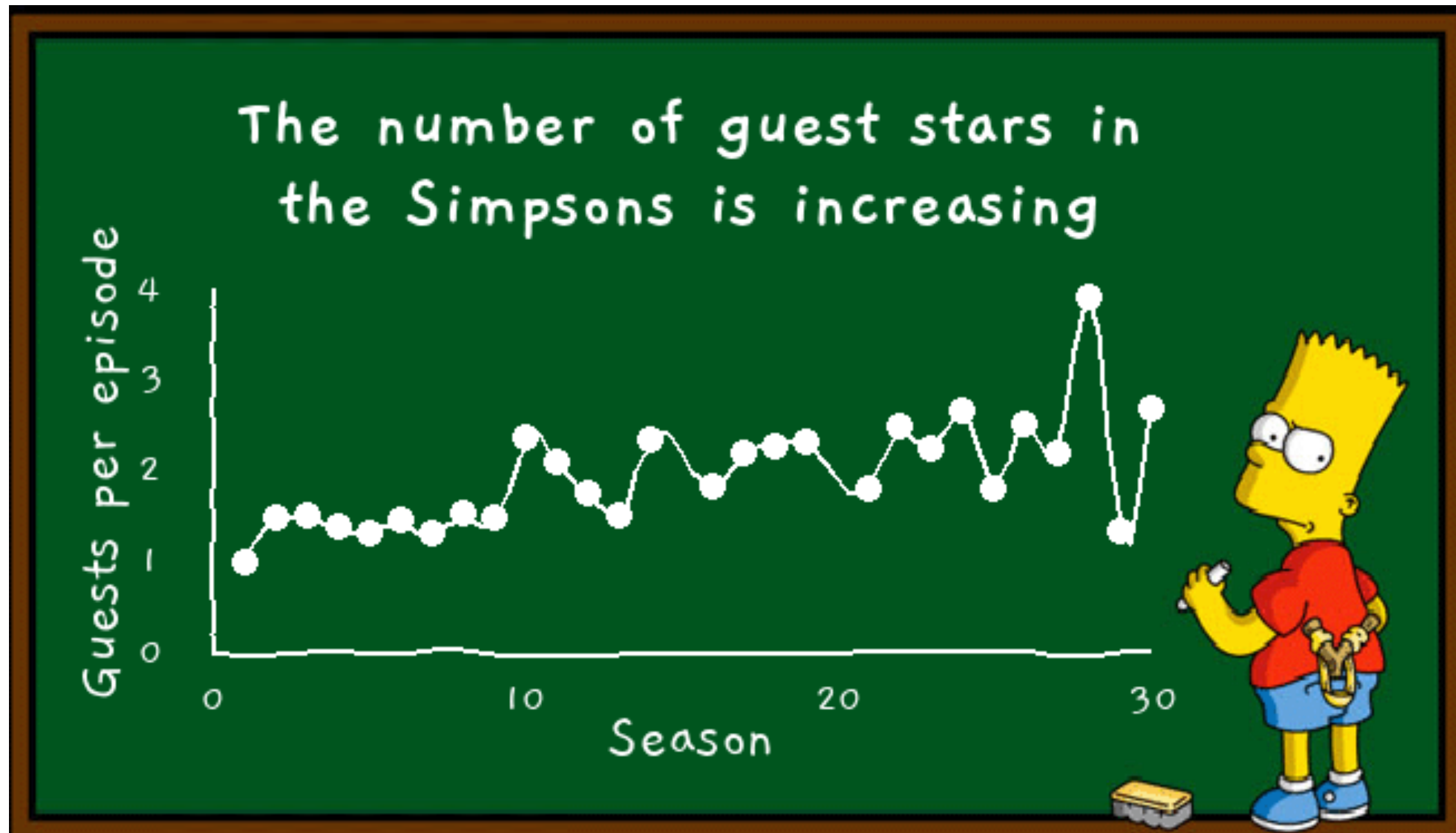
SPACE OBSERVER 3000 X V3.5.1



Provided by @CedScherer & National Aeronautics and Space Administration (NASA)

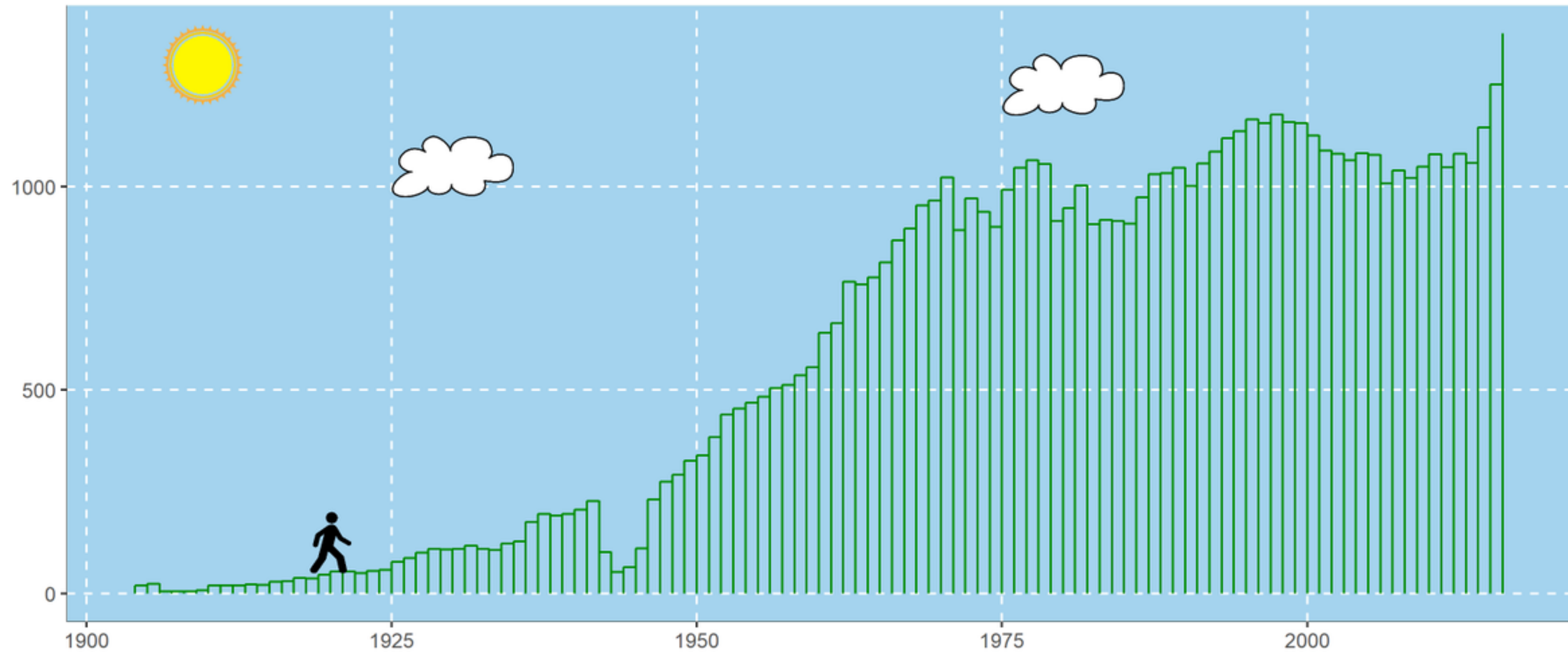
Media Franchise Powerhouses





Visitors in National Parks

Average per year (Thousands)



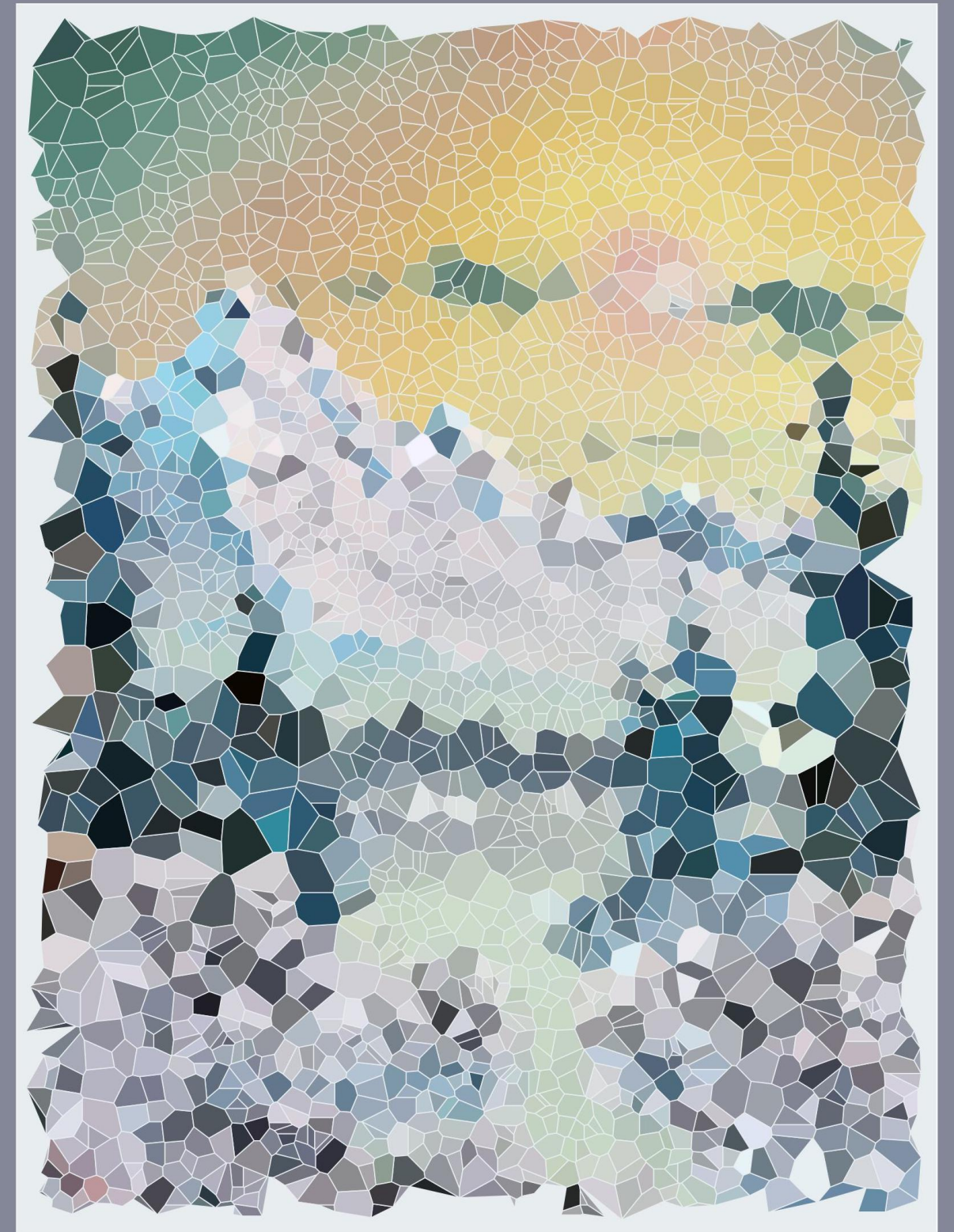
data from: data.world | AmitL

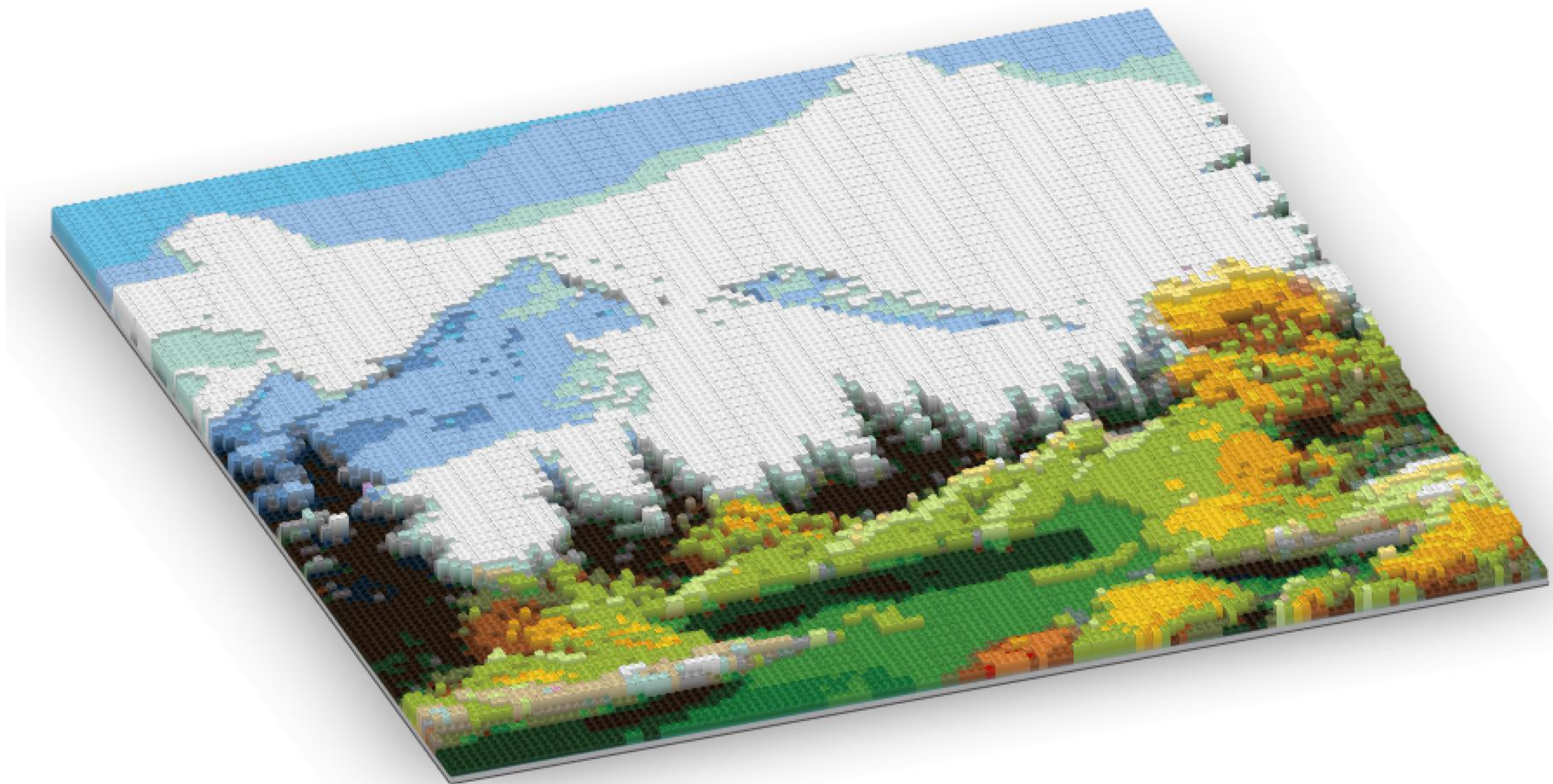
20. Art! 🎨👨🎨

The dataset on Bob Ross Paintings sparked a lot of creativity



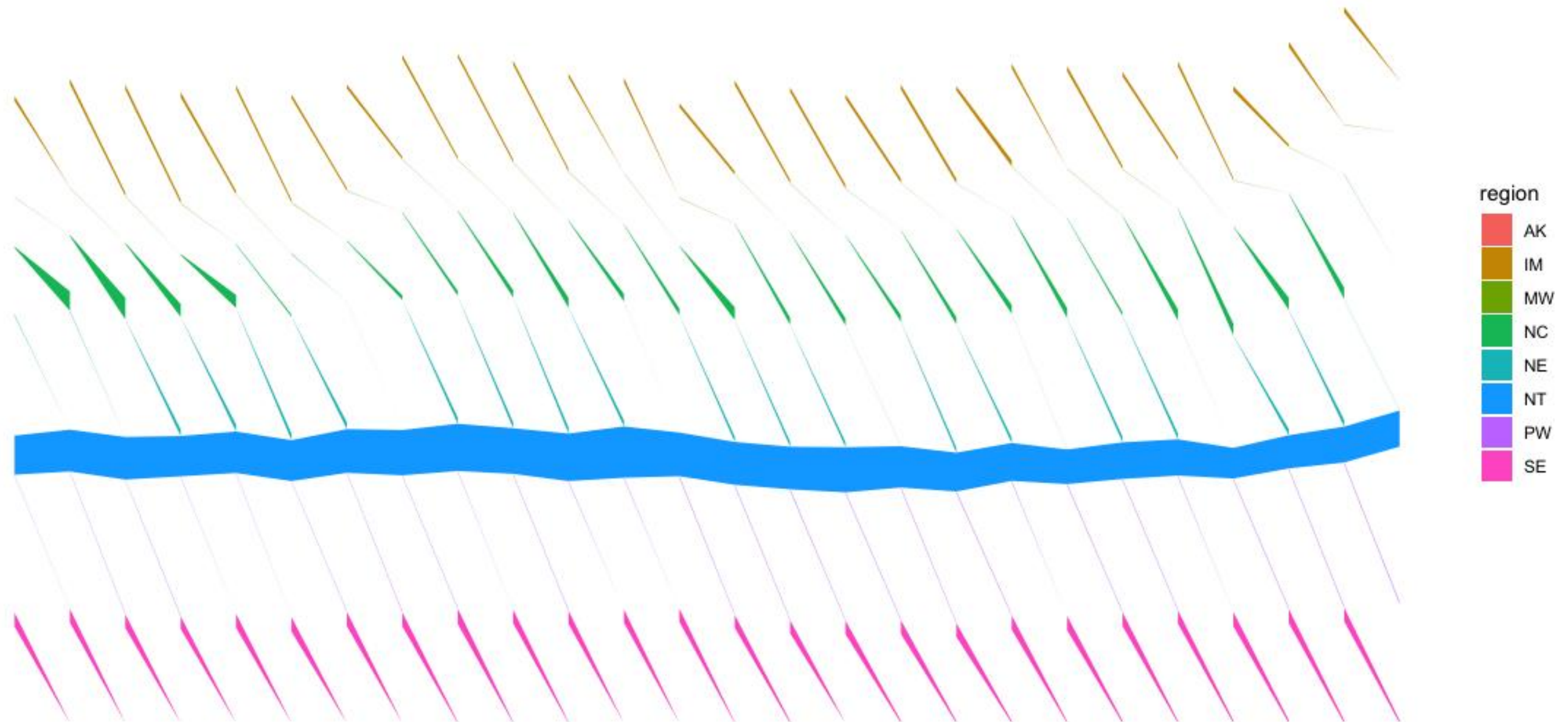
Voronoi
tessellation
of one of Bob
Ross paintings.
Inspired by
@chisatini's
blog.





🎨 Bob Ross Paintings by [@sbhagerty](#) made with the [brickr](#) package

...and @accidental_aRt



animal



cool-macho



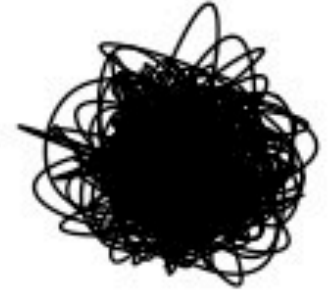
fluffy



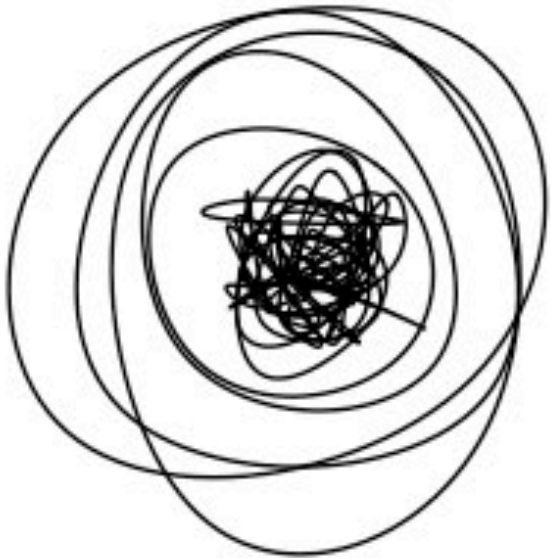
food



name



nerdy-pop



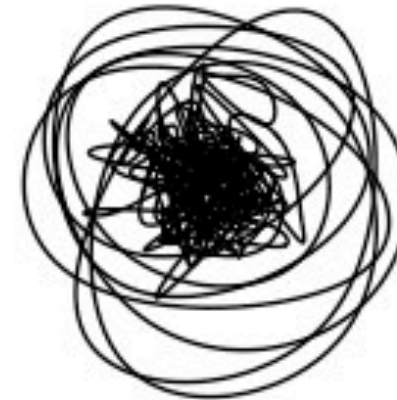
password-related



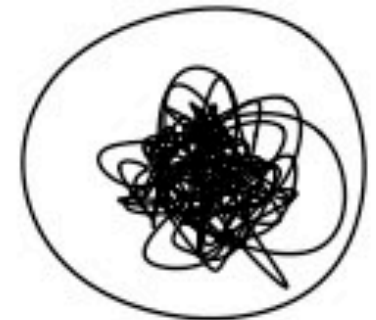
rebellious-rude



simple-alphanumeric



sport



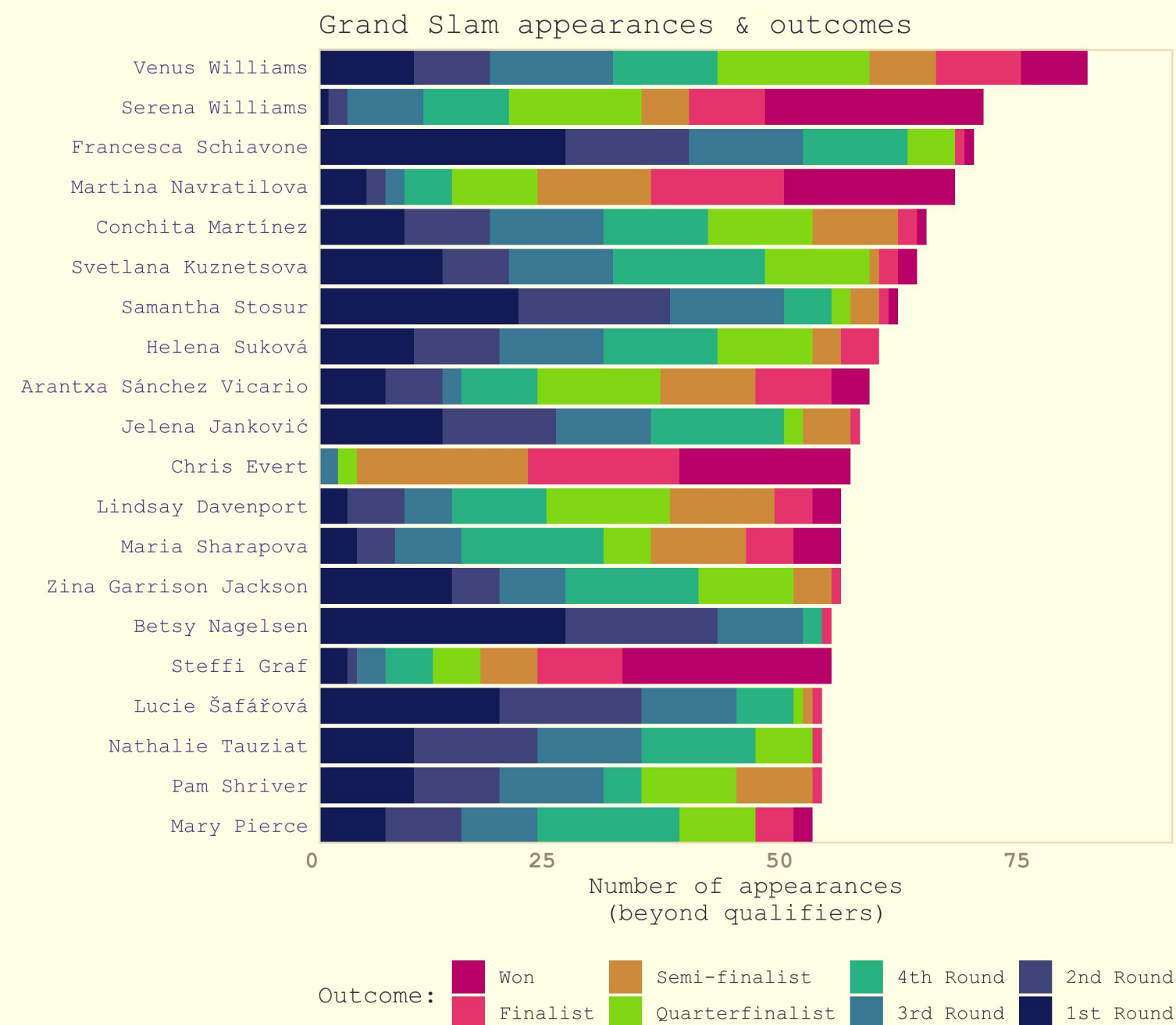
21. Color palettes

Comprehensive list of
color palettes by
[@EmilHvitfeldt](#)

Some favorites:

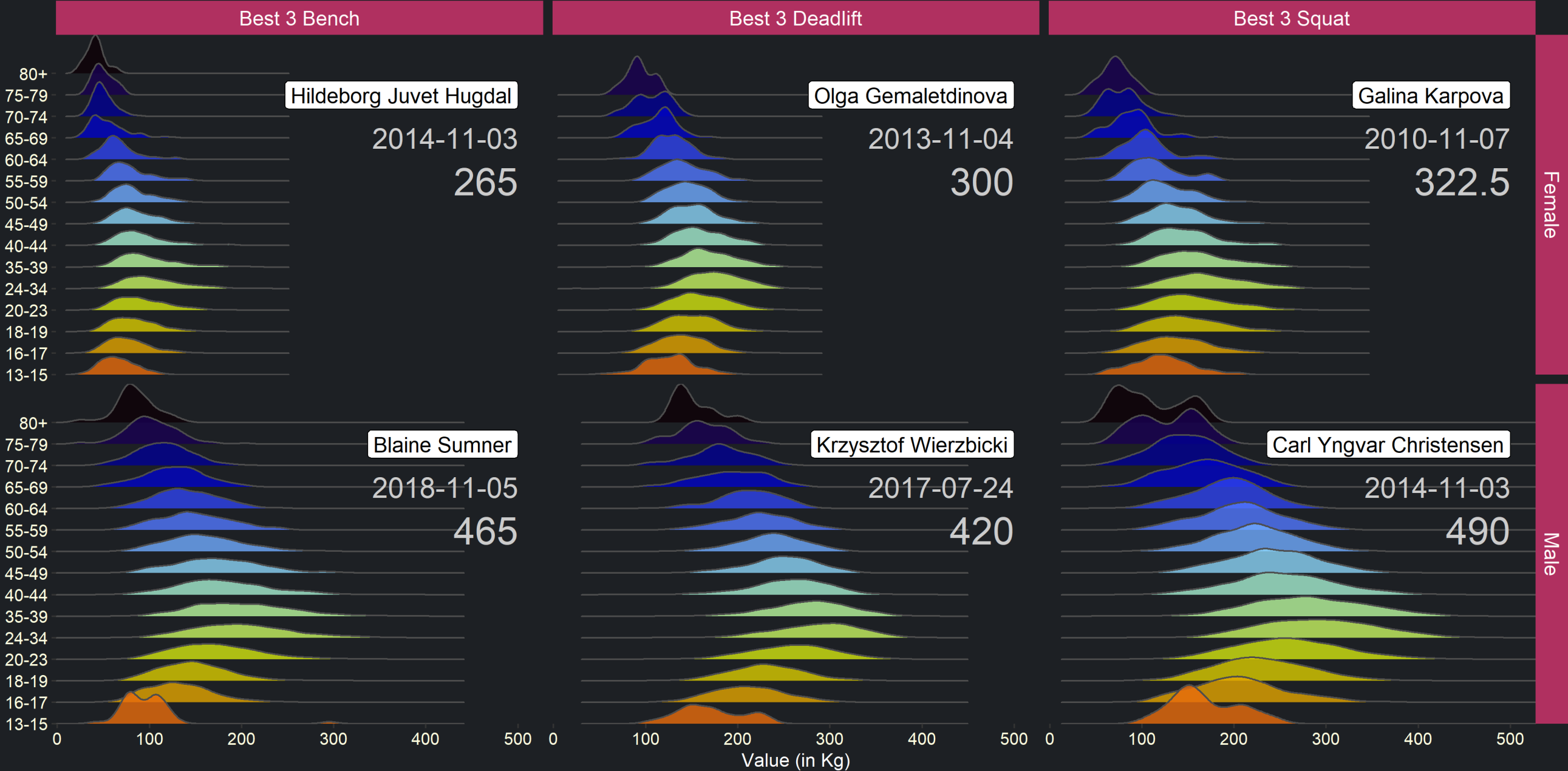
LaCroixColor by
[@johannesbjork](#)

fisualize by
[@NinaSchiett](#)



Power Lift Performance Accross Ages and Sex

Best record of each category is shown on the right side

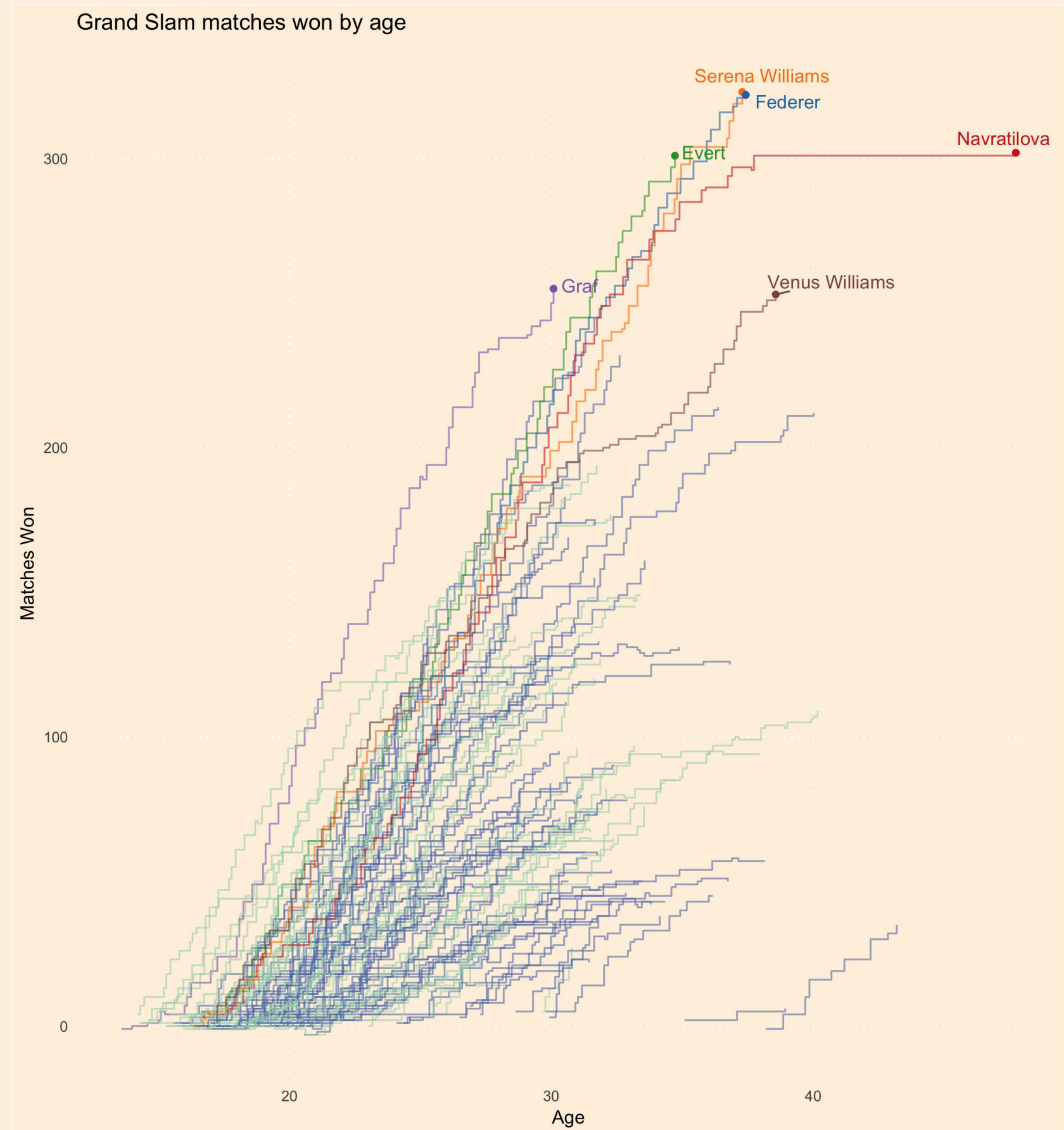


@Argaadya1 | #TidyTuesday

22. Stepgraphs

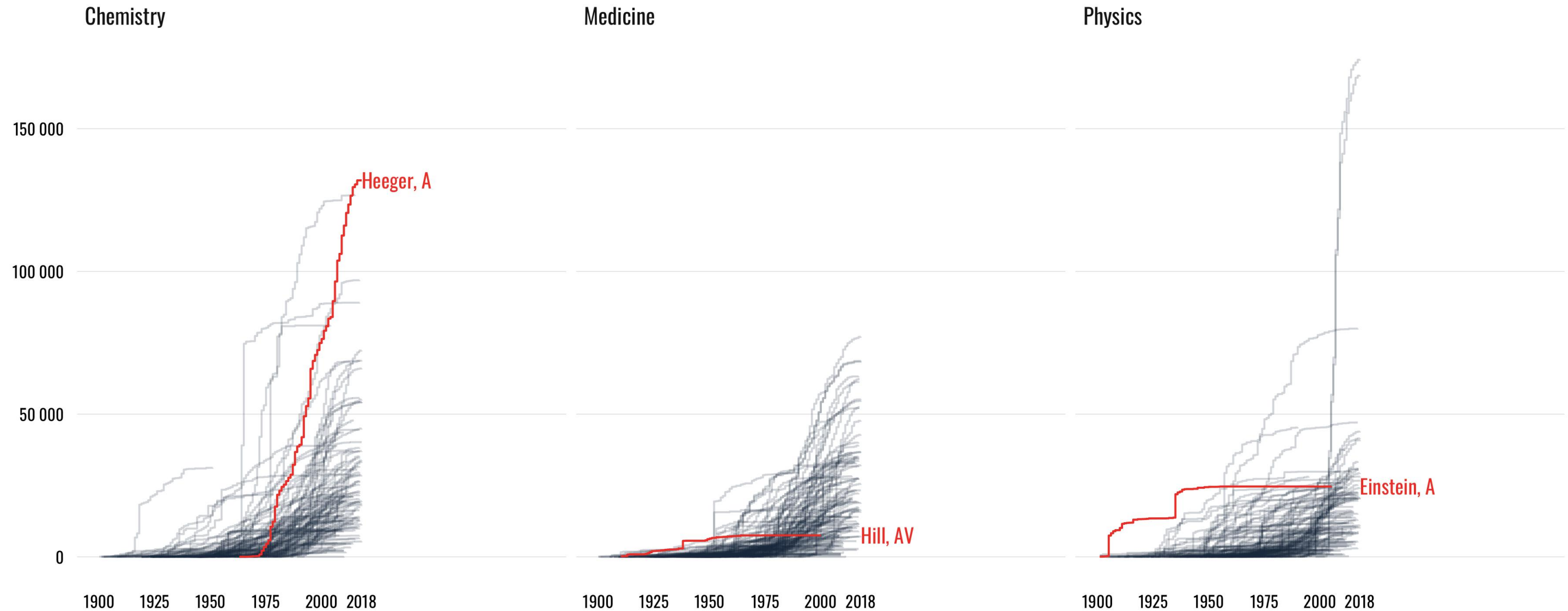
Great choice to
compare rate of
progress across many
competing individuals

And it doesn't hurt to
highlight the greats 🏆



Growth Patterns in How Often Nobel Prize Winning Researchers Are Cited

Cummulative citation count by year (1900-2018). Highlighted are A. Heeger (conductive polymers), A.V. Hill (heat and work in muscle) and A. Einstein (photoelectric effect). Each exhibit different citation patterns, likely attributed to the continued relevance and impact of their work.



Data: Li, Jichao; Yin, Yian; Fortunato, Santo; Wang Dashun, 2018, 'A dataset of publication records for Nobel laureates', <https://doi.org/10.7910/DVN/6NJ5RN>, Harvard Dataverse. | Graphic: @jakekaupp

23. Screencasts



David Robinson @drob · Oct 6, 2018



I've thought about recording a screencast of an example data analysis in [#rstats](#). I'd do it on a dataset I'm unfamiliar with so that I can show and narrate my live thought process.

Any suggestions for interesting datasets to use?



Hadley Wickham ✓
@hadleywickham

Do a [#tidytuesday](#) !

♡ 60 6:30 AM - Oct 6, 2018



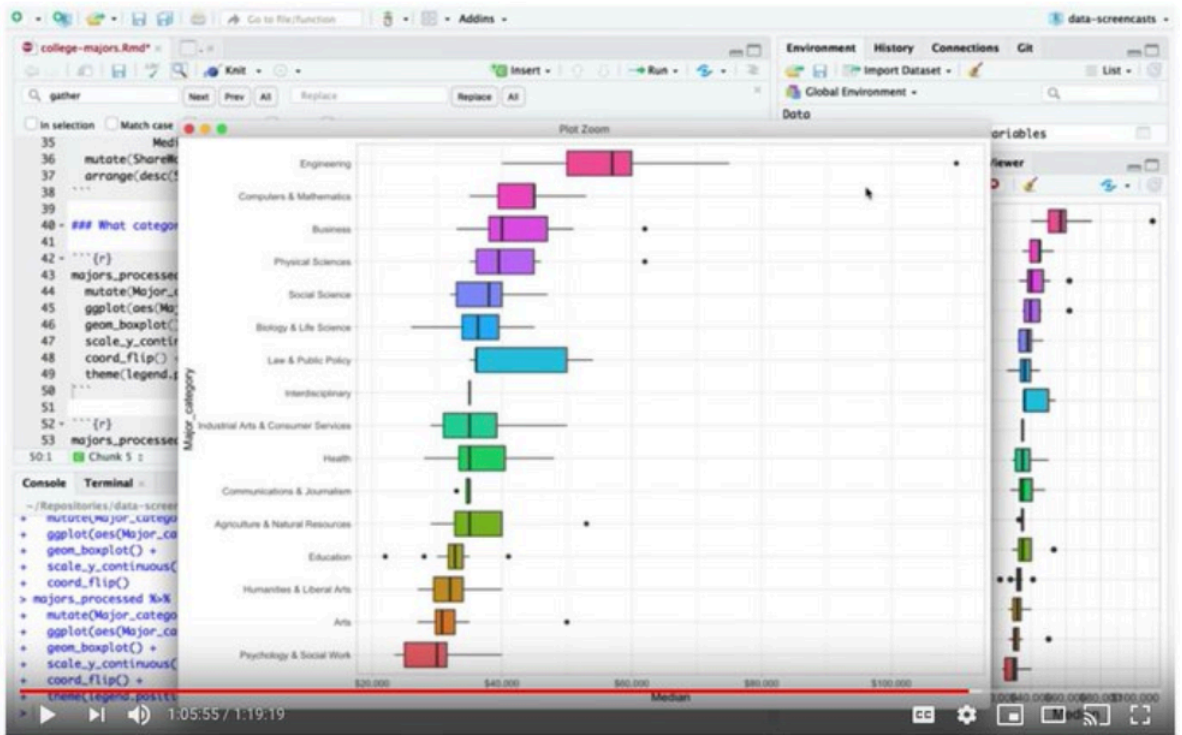
See Hadley Wickham's other Tweets



David Robinson
@drob



For this week's [#tidytuesday](#), I've recorded a screencast where I analyze data on college major and income, without looking at the data in advance. Excited to try this experiment!
varianceexplained.org/r/tidy-tuesday... [#rstats](#)



♡ 486 7:35 AM - Oct 16, 2018



111 people are talking about this



[@hadleywickham](#) suggests a Tidy Tuesday screencast (left) and [@drob](#) shares his first screencast (right)



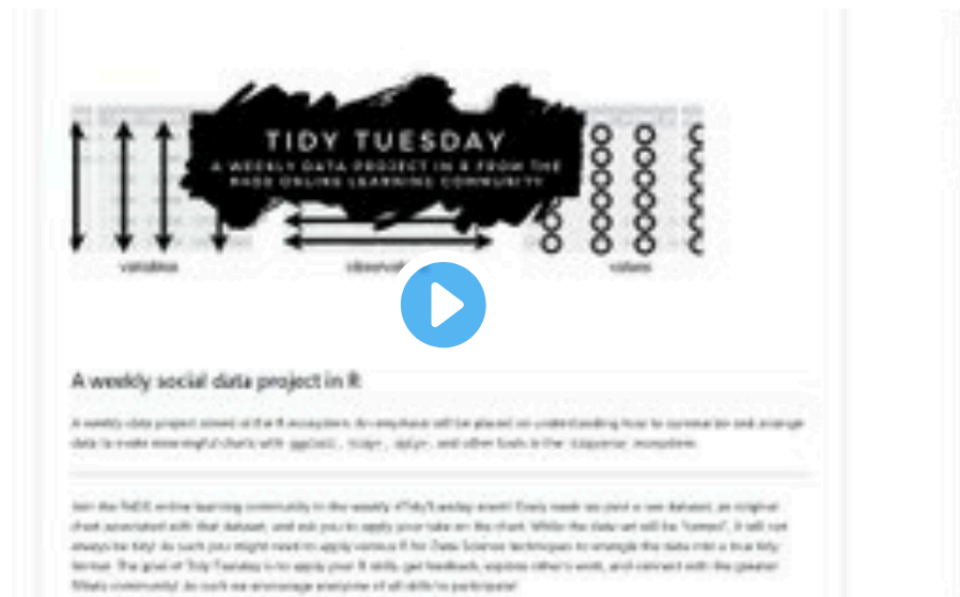
Duncan Garmonsway

@nacnudus



My first [#TidyTuesday](#) screencast in which I demonstrate `readr::melt_csv()` and `unpivotr::behead()` with the US Honey Production data (cracking nuts with hammers), and develop cold-like symptoms [youtube.com/watch?v=zUqwJu...](https://www.youtube.com/watch?v=zUqwJu...) [#rstats](#)

YouTube @YouTube



♡ 39 12:47 PM - Dec 4, 2018



See Duncan Garmonsway's other Tweets



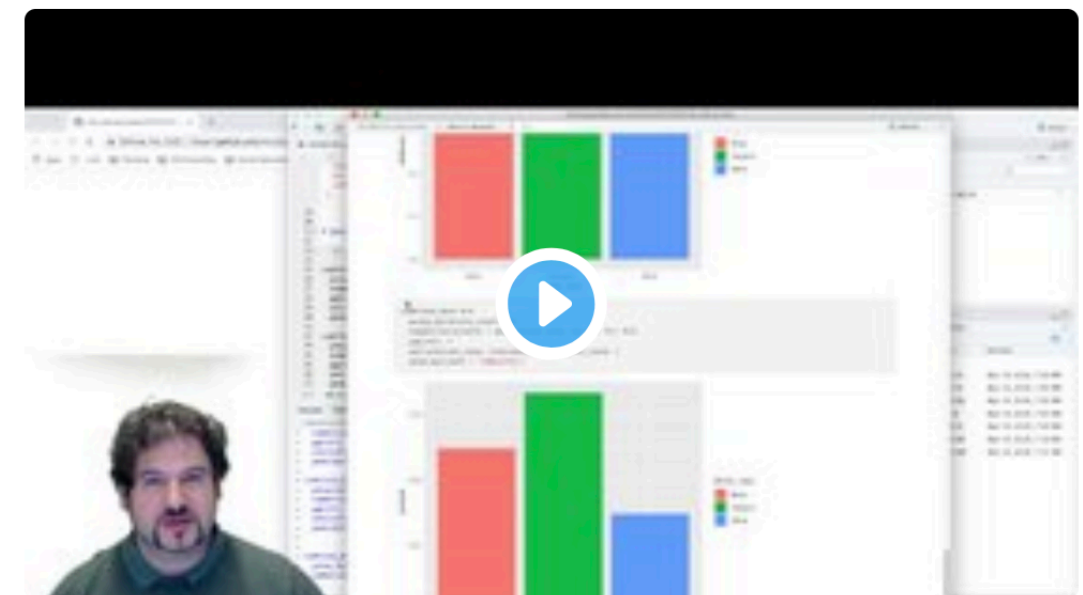
André Calero Valdez

@Sumidu



First attempt at a German [#tidytuesday](#) screencast youtu.be/POS23kFoWx8.

YouTube @YouTube



♡ 2 10:35 AM - Mar 19, 2019



See André Calero Valdez's other Tweets



Other screencasters have followed suit like [@nacnudus](#) (left) and [@Sumidu](#) (right)

The people still want
more screencasts!

The next time you make
a Tidy Tuesday data
visualization, consider
recording a short video
and sharing it online

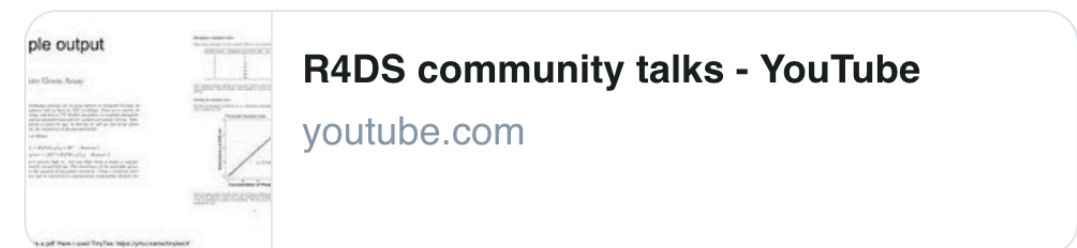
Learning in the open
helps everyone 🌈

 **Vaibhav Singh** @MYMRockMama · Mar 26, 2019 
[@thomas_mock](#) Hi Thomas, Thank you for this brilliant initiative [#tidytuesday](#), I wanted to ask if you know anyone other than [@drob](#) who live codes his/her TidyTuesday work and uploads in YouTube or code on GitHub.

Intermediate level, I could use some help in modeling basics.

 **Tom @ #RStudioConf**
[@thomas_mock](#)

There is the [@R4DScommunity](#) YouTube [youtube.com/playlist?list=...](#) [@rctatman](#) does live coding on Twitch [twitch.tv/rctatman@sharon000](#) shares lots of nice walkthroughs [youtu.be/jpsU_Ng-KU8@hadleywickham](#) 's "Whole Game" [youtu.be/go5Au01Jrvs](#)



♡ 2 12:34 PM - Mar 27, 2019 

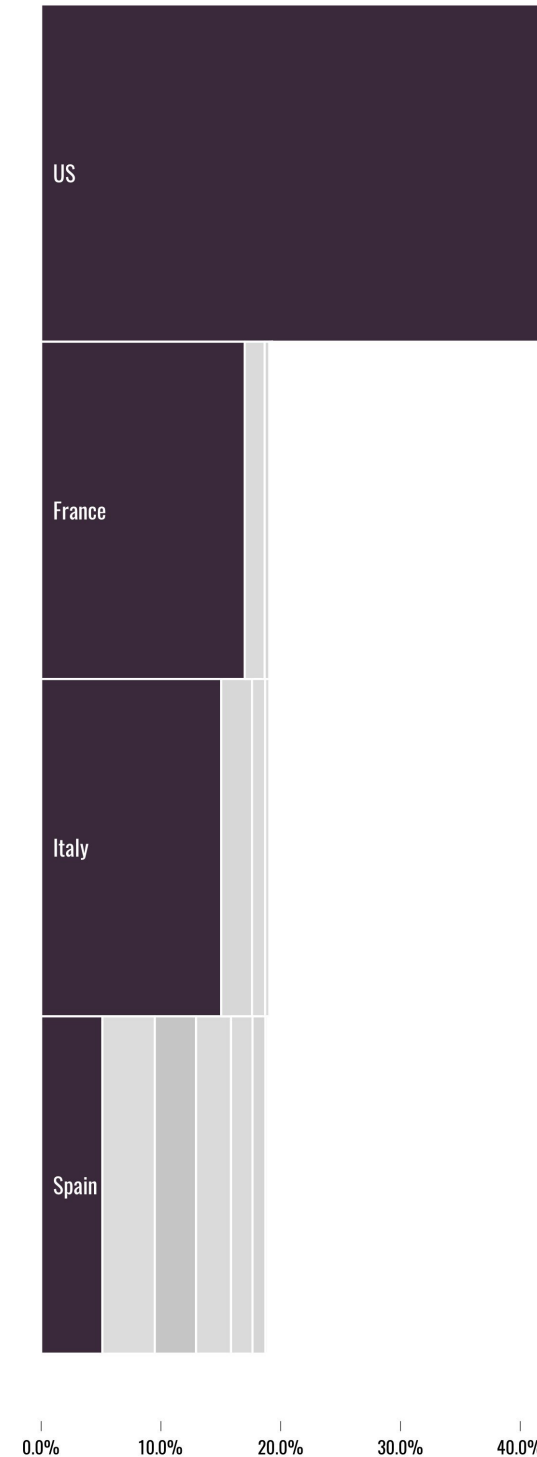
 See Tom @ #RStudioConf's other Tweets 

[@MYMRockMama](#) asks for recommendations of live R coding videos, like those by [@drob](#).

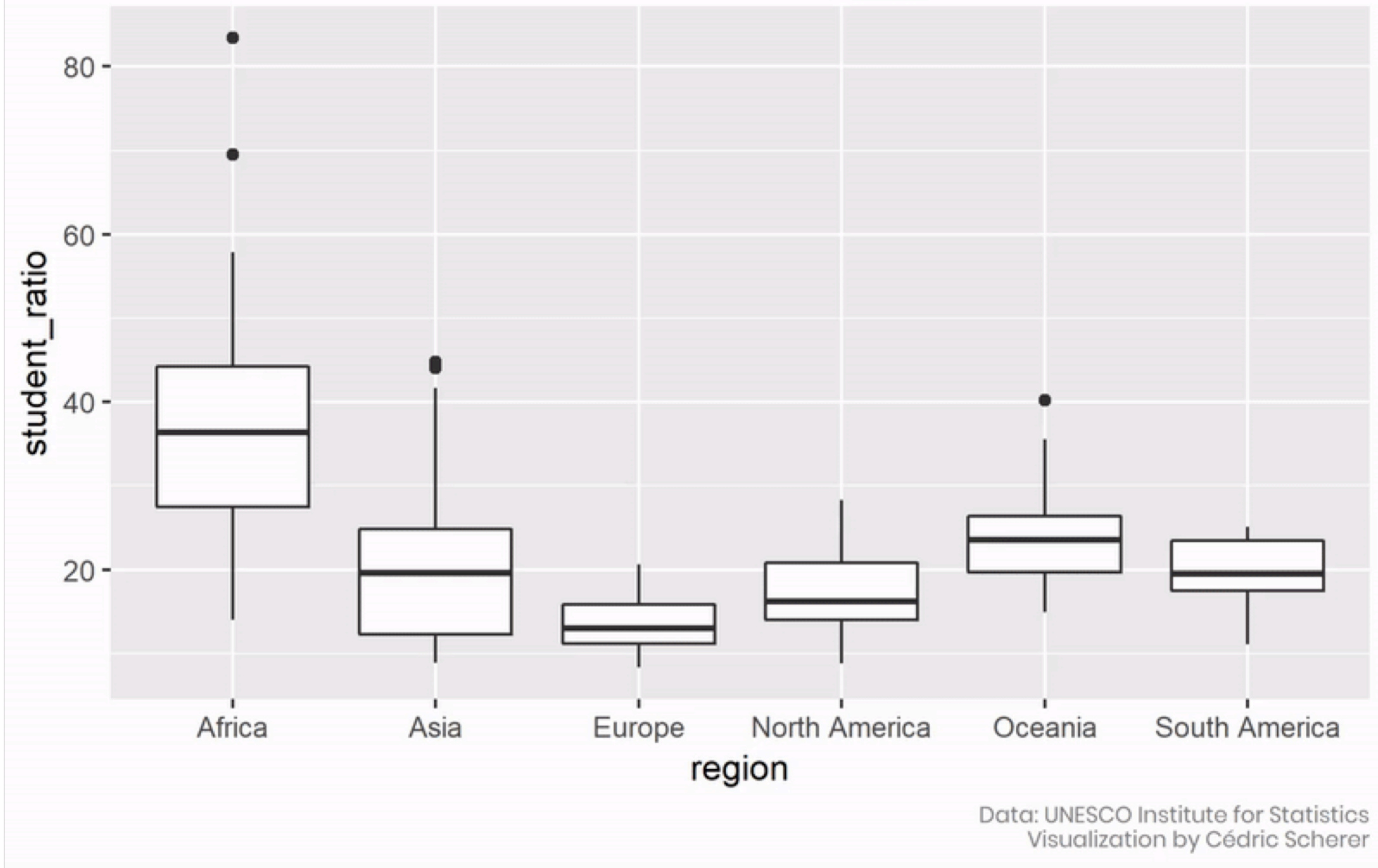


Data: Kaggle via WineEnthusiast | Graphic: @jakekaupp

On the left, a packed bar chart showing the % of reviewed wines by country. On the right, wordclouds of the top 300 most frequent terms used in reviews.



The Evolution of a ggplot



Simpsons' Guest Appearances are Growing

Adaptation of Gil Henriques' Simpsons Plot, by Evangeline
Reynolds

5/18/2018



25. Recreate graphics with ggplot2

CONFEDERATION	IN 2010, SHARE OF ...			
	FIFA MEMBERS	GLOBAL POPULATION	WORLD CUP TV AUDIENCE	GDP-WEIGHTED TV AUDIENCE
UEFA (Europe)	25 . 8%	12 . 4%	25 . 3%	39 . 2%
AFC (Asia)	22 . 0	58 . 8	42 . 6	31 . 8
CONCACAF (N. America)	16 . 7	7 . 9	9 . 7	15 . 8
CONMEBOL (S. America)	4 . 8	5 . 7	13 . 5	10 . 2
CAF (Africa)	25 . 4	15 . 0	8 . 8	2 . 9
OFC (Oceania)	5 . 3	0 . 2	0 . 2	0 . 1

CONFEDERATION	IN 2010, SHARE OF ...			
	FIFA MEMBERS	GLOBAL POPULATION	WORLD CUP TV AUDIENCE	GDP-WEIGHTED TV AUDIENCE
UEFA (Europe)	24.1%	12.4%	25.2%	39%
AFC (Asia)	22.5	58.9	42.6	31.6
CONCACAF (N. America)	15.7	7.8	9.8	15.8
CONMEBOL (S. America)	5.2	5.6	13.5	10.3
CAF (Africa)	26.2	14.9	8.6	2.6
OFC (Oceania)	6.3	0.2	0.2	0.1

Chance of winning

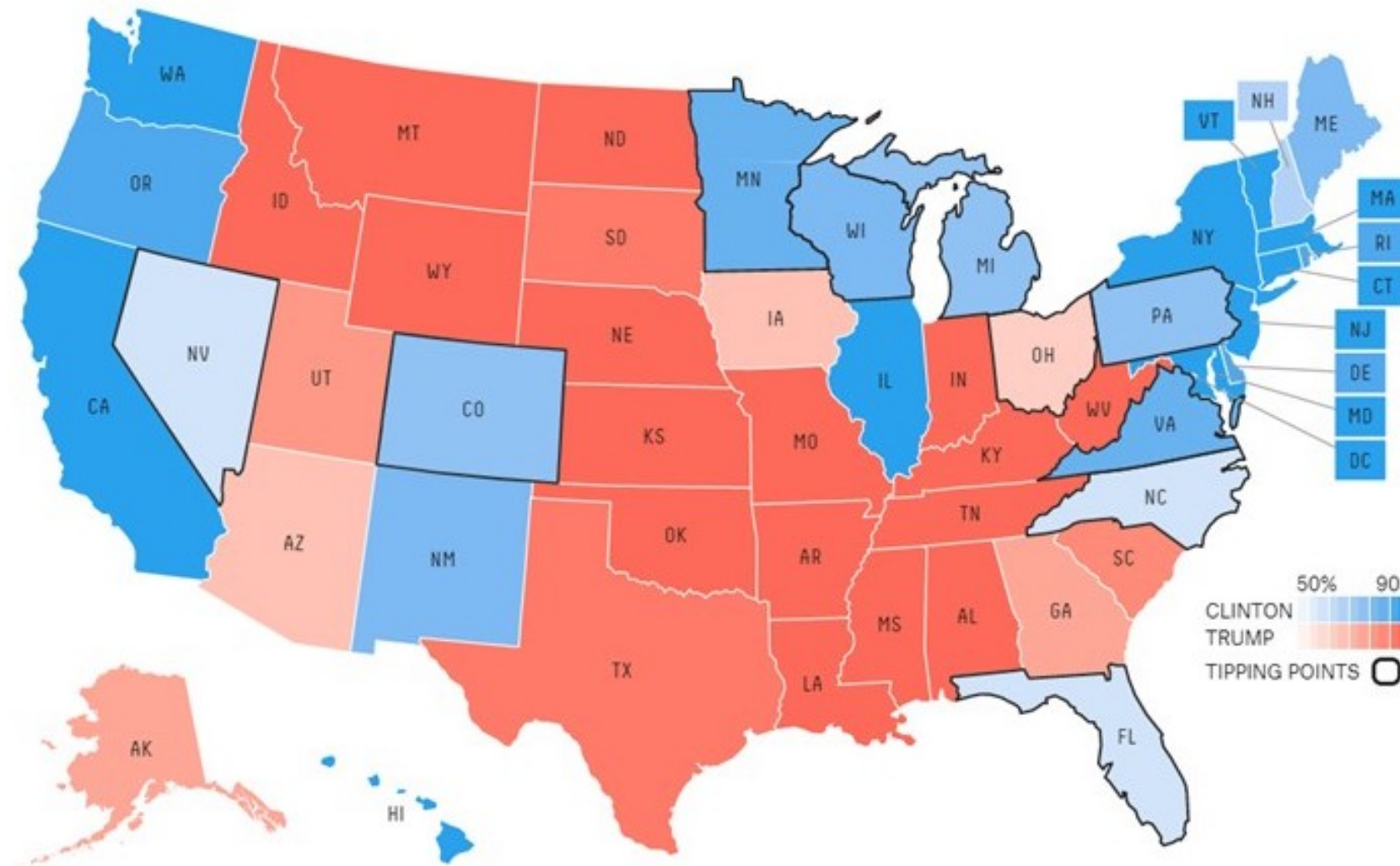


Hillary Clinton

71.4%

Donald Trump

28.6%



Who will win the presidency? by [FiveThirtyEight](#)

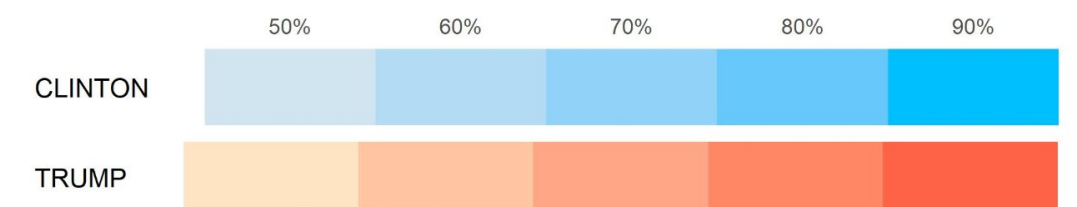
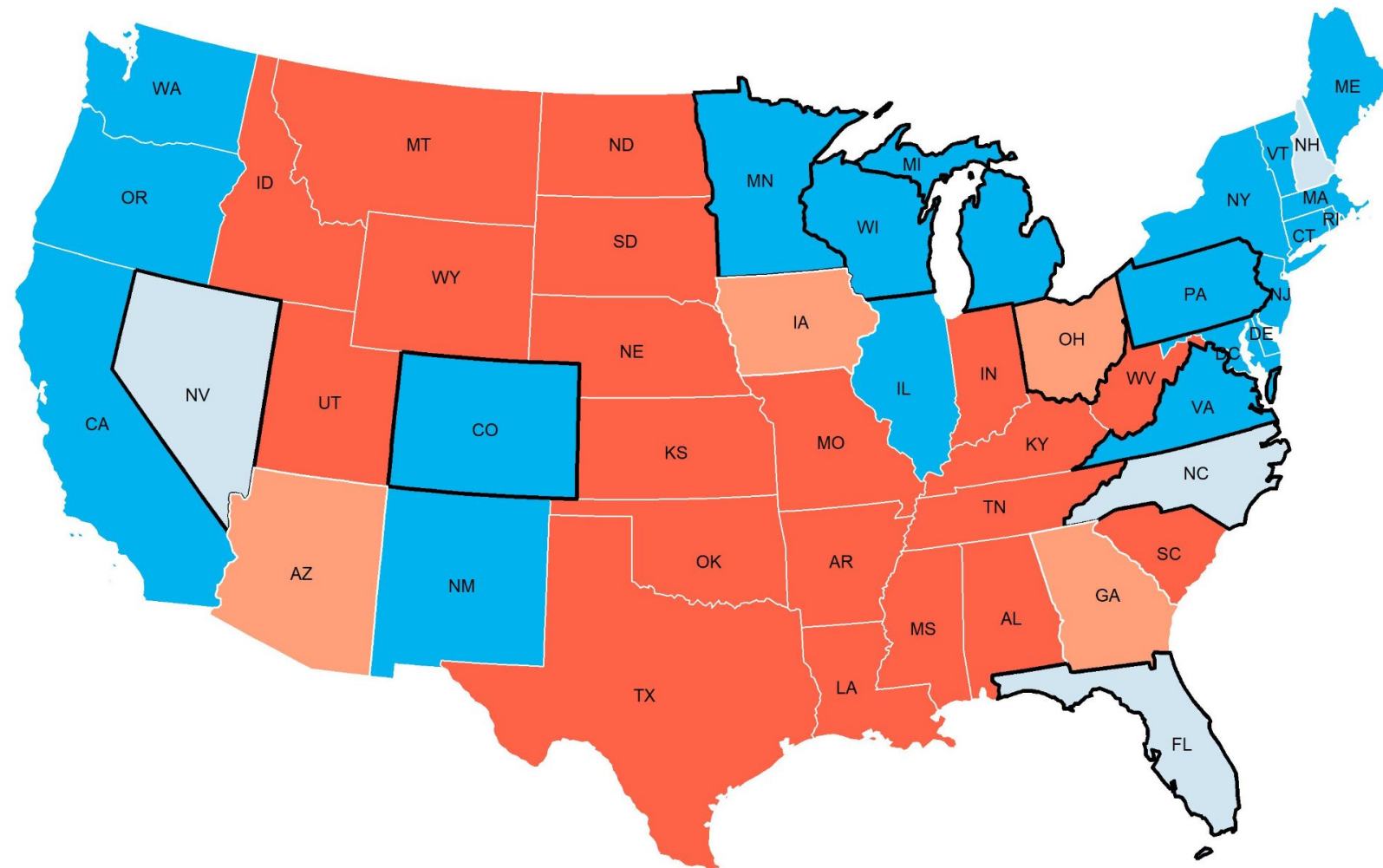
Chance of winning

Hillary Clinton

71.4%

Donald Trump

28.6%



Recreation of "Who will win the presidency?" with ggplot2 by @negbogah

And those are 25 Data Viz Trends of the #TidyTuesday Community!

You can find a copy of these slides at nsgrantham.com/data-viz-trends

What do you think? Did I miss a trend? I want to hear from you! Share your thoughts with me on Twitter ✨@nsgrantham ✨

Happy plotting! 🧑🏻💻