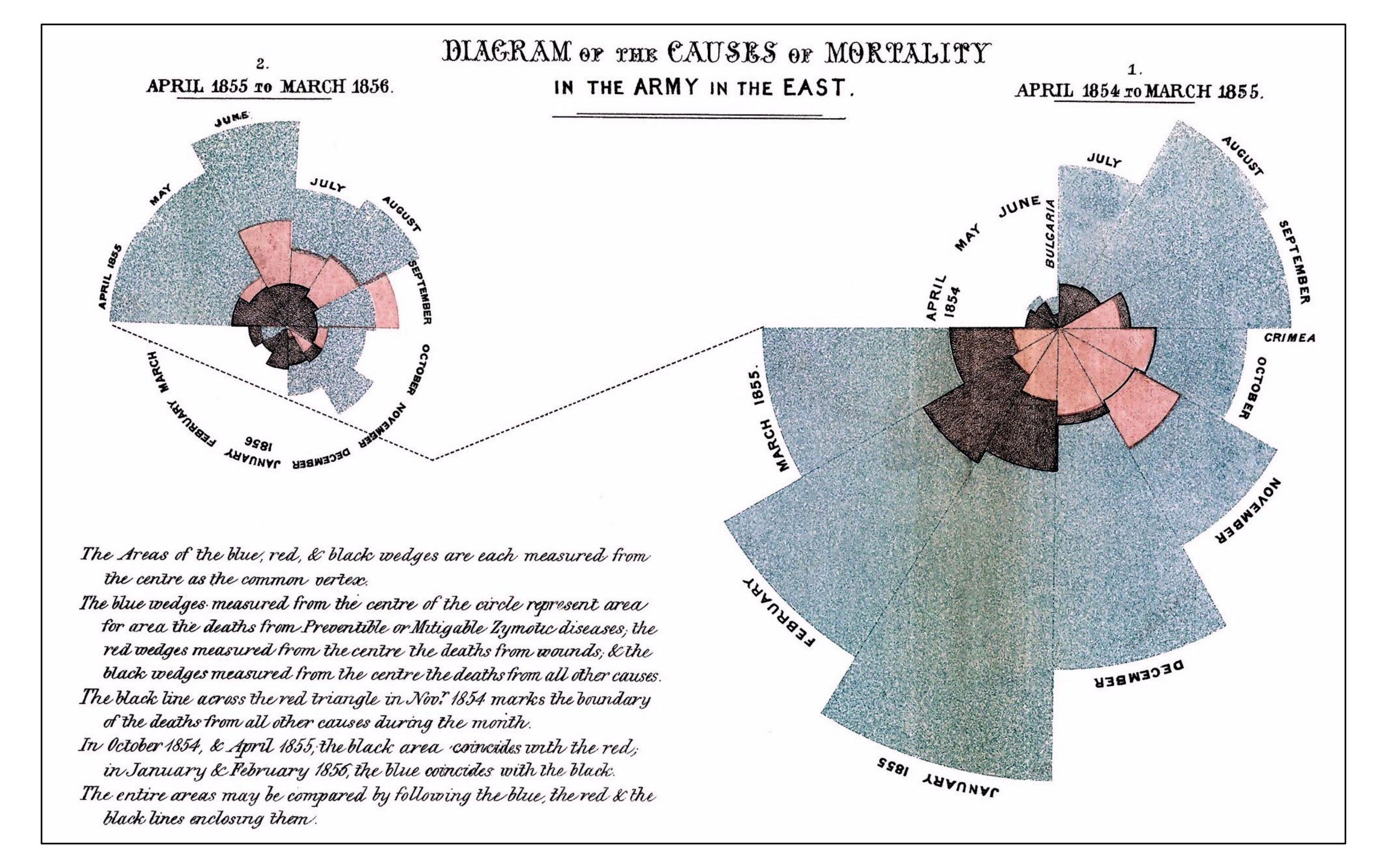# Visualization

4 April 2023
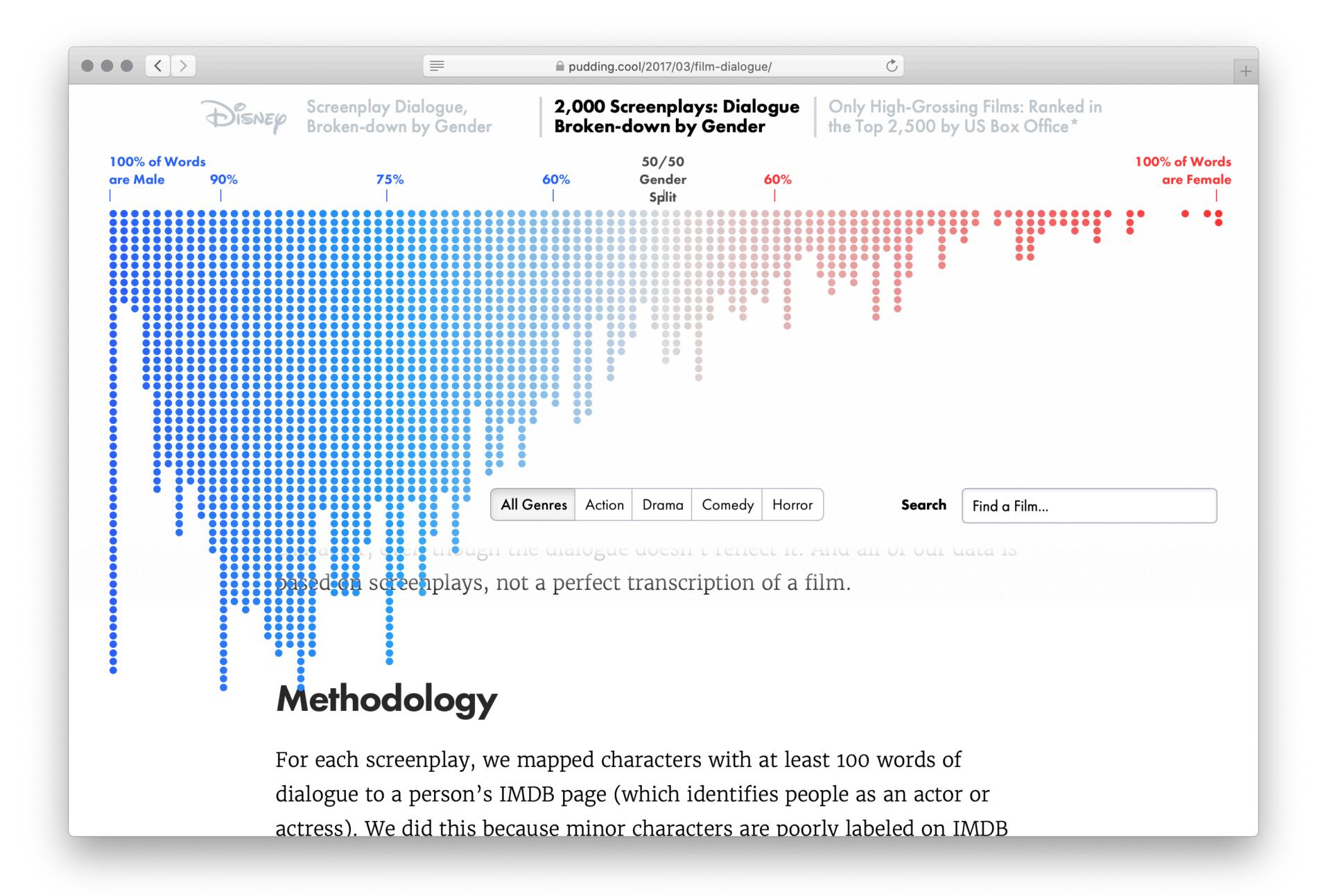
Data scientists use plots for both *exploratory* and *explanatory* purposes – they are useful for understanding data in preparation for further analysis and in presenting data to a general audience.
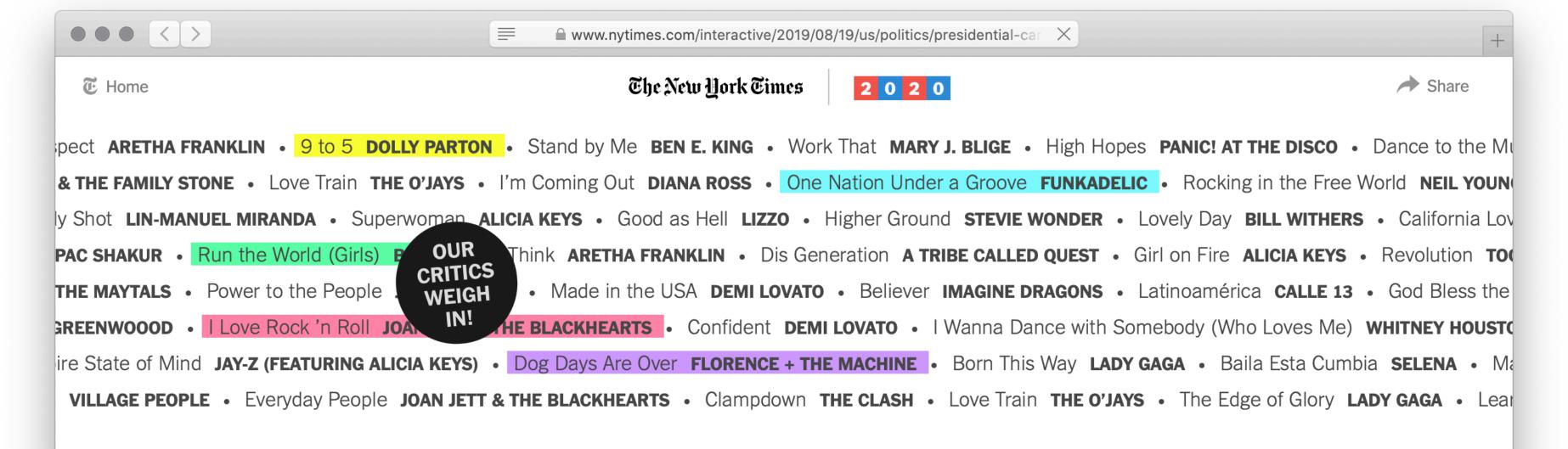
Visual appeal

Florence Nightingale created a visualization of mortality data from the Crimean War, which was published in *Notes on Matters Affecting the Health Efficiency, and Hospital Administration of the British Army* and was sent to Queen Victoria in 1858.

DIAGRAM of the CAUSES of MORTALITY
IN THE ARMY IN THE EAST.

2.
APRIL 1855 to MARCH 1856.

1.
APRIL 1854 to MARCH 1855.

The Areas of the blue, red, & black wedges are each measured from
 the centre as the common vertex.

The blue wedges measured from the centre of the circle represent area
 for area the deaths from Preventible or Mitigable Zymotic diseases; the
 red wedges measured from the centre the deaths from wounds; & the
 black wedges measured from the centre the deaths from all other causes.

The black line across the red triangle in Nov.r 1854 marks the boundary
 of the deaths from all other causes during the month.

In October 1854, & April 1855, the black area coincides with the red;
 in January & February 1856, the blue coincides with the black.

The entire areas may be compared by following the blue, the red & the
 black lines enclosing them.

Digital visual explanations

100% of Words are Male   **90%**   **75%**   **60%**   **50/50 Gender Split**   **60%**   **100% of Words are Female**

| All Genres | Action | Drama | Comedy | Horror |

Search Find a Film...

...able, even though the dialogue doesn't reflect it. And all of our data is based on screenplays, not a perfect transcription of a film.

Methodology

For each screenplay, we mapped characters with at least 100 words of dialogue to a person's IMDB page (which identifies people as an actor or actress). We did this because minor characters are poorly labeled on IMDB

spect **ARETHA FRANKLIN** • 9 to 5 **DOLLY PARTON** • Stand by Me **BEN E. KING** • Work That **MARY J. BLIGE** • High Hopes **PANIC! AT THE DISCO** • Dance to the Mu

& THE FAMILY STONE • Love Train **THE O'JAYS** • I'm Coming Out **DIANA ROSS** • One Nation Under a Groove **FUNKADELIC** • Rocking in the Free World **NEIL YOUNG**

y Shot **LIN-MANUEL MIRANDA** • Superwoman **ALICIA KEYS** • Good as Hell **LIZZO** • Higher Ground **STEVIE WONDER** • Lovely Day **BILL WITHERS** • California Lov

PAC SHAKUR • Run the World (Girls) B

OUR CRITICS WEIGH IN!

Think **ARETHA FRANKLIN** • Dis Generation **A TRIBE CALLED QUEST** • Girl on Fire **ALICIA KEYS** • Revolution **TOO**

THE MAYTALS • Power to the People • Made in the USA **DEMI LOVATO** • Believer **IMAGINE DRAGONS** • Latinoamérica **CALLE 13** • God Bless the

GREENWOOOD • I Love Rock 'n Roll JOAN

THE BLACKHEARTS • Confident **DEMI LOVATO** • I Wanna Dance with Somebody (Who Loves Me) **WHITNEY HOUSTON**

ire State of Mind **JAY-Z (FEATURING ALICIA KEYS)** • Dog Days Are Over **FLORENCE + THE MACHINE** • Born This Way **LADY GAGA** • Baila Esta Cumbia **SELENA** • Ma

VILLAGE PEOPLE • Everyday People **JOAN JETT & THE BLACKHEARTS** • Clampdown **THE CLASH** • Love Train **THE O'JAYS** • The Edge of Glory **LADY GAGA** • Lear
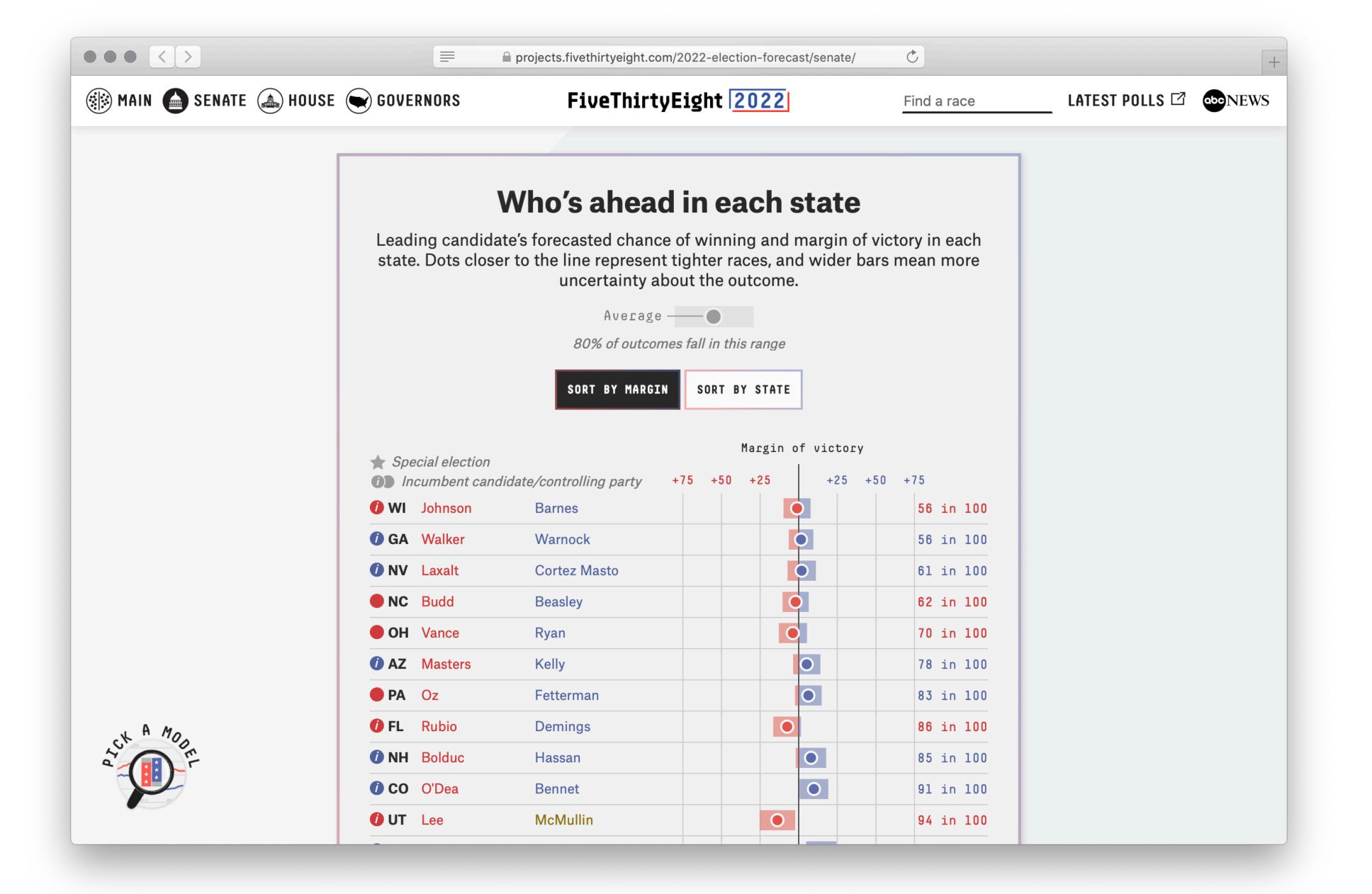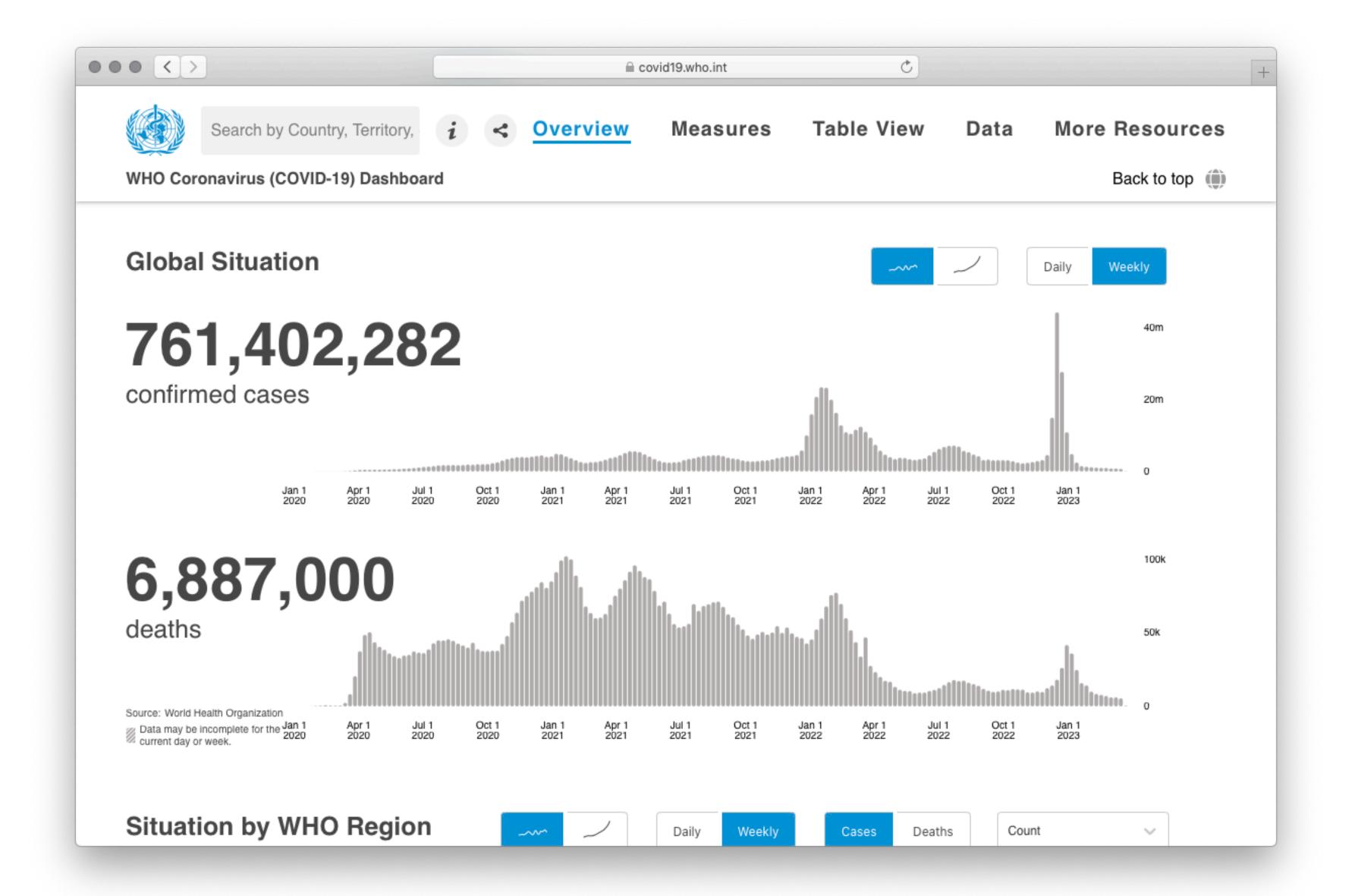
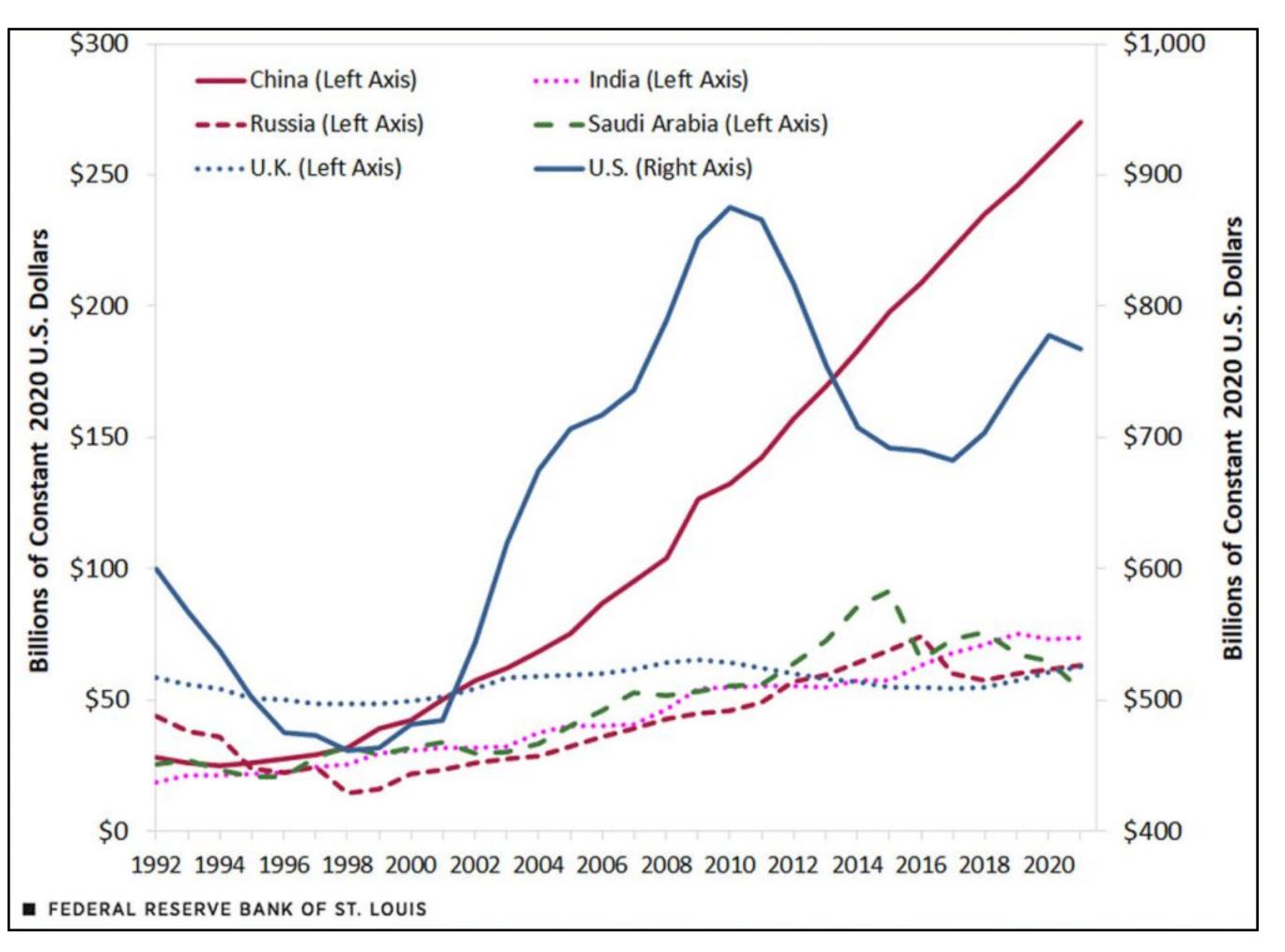# What Do Rally Playlists Say About the Candidates?

Presidential campaigns have a sound. We analyzed the
playlists of 10 contenders to see how the songs aligned with
the messages.

ve **DARIUS RUCKER** • Under Pressure **QUEEN** • Country Nation **BRAD PAISLEY** • Yes We Can Can **THE POINTER SISTERS** • Baba O'Riley **THE WHO** • Love on To

YONCÉ • Soar **CHRISTINA AGUILERA** • Feeling Good **JENNIFER HUDSON** • Stand up for Something **ANDRA DAY (FEATURING COMMON)** • Fire **TIMEFLIES** • Clampd

E CLASH • Mi Tierra **GLORIA ESTEFAN** • Let Love Rule **LENNY KRAVITZ** • Third Eye **FLORENCE + THE MACHINE** • The Tim a-Changin' **TRACY CHAPMAN**

n Hopes **PANIC! AT THE DISCO** • Da Da Ding **GENER8ION (FEATURING GIZZLE)** • Never Going Back Again **FLEETWOOD MAC** p • CURTIS MAYFIELD • Ain'

TURN YOUR SOUND ON!

THE AVETT BROTHERS • Come Alive **YEARS & YEARS WITH JESS GLYNNE** • Brooklyn Go Hard **JAY-Z** • On the Road Again (LIE NELSON • Revolution **TOO**

THE MAYTALS • Uprising **MUSE** • Revolution **FLOGGING MOLLY** • The Revolution Starts... **STEVE EARLE** • Power to the People **JOHN LENNON** • Takin' It to the St

THE DOOBIE BROTHERS • Heroes **DAVID BOWIE** • All We Ever Knew **THE HEAD AND THE HEART** • (Your Love Keeps Lifting Me) Higher & Higher **JACKIE WILSON**

MAIN SENATE HOUSE GOVERNORS **FiveThirtyEight** 2022 Find a race LATEST POLLS abcNEWS

Who's ahead in each state

Leading candidate's forecasted chance of winning and margin of victory in each state. Dots closer to the line represent tighter races, and wider bars mean more uncertainty about the outcome.

Average

80% of outcomes fall in this range

SORT BY MARGIN SORT BY STATE

★ *Special election*
ⓘ *Incumbent candidate/controlling party*

					Margin of victory						
			+75	+50	+25		+25	+50	+75		
ⓘ WI	Johnson	Barnes			●						56 in 100
ⓘ GA	Walker	Warnock			●						56 in 100
ⓘ NV	Laxalt	Cortez Masto			●						61 in 100
● NC	Budd	Beasley			●						62 in 100
● OH	Vance	Ryan			●						70 in 100
ⓘ AZ	Masters	Kelly				●					78 in 100
● PA	Oz	Fetterman				●					83 in 100
ⓘ FL	Rubio	Demings			●						86 in 100
ⓘ NH	Bolduc	Hassan				●					85 in 100
ⓘ CO	O'Dea	Bennet				●					91 in 100
ⓘ UT	Lee	McMullin			●						94 in 100

Search by Country, Territory,   *i*   Overview   Measures   Table View   Data   More Resources

WHO Coronavirus (COVID-19) Dashboard

Back to top

Global Situation

Daily   **Weekly**

761,402,282

confirmed cases

40m

20m

0

| Jan 1 2020 | Apr 1 2020 | Jul 1 2020 | Oct 1 2020 | Jan 1 2021 | Apr 1 2021 | Jul 1 2021 | Oct 1 2021 | Jan 1 2022 | Apr 1 2022 | Jul 1 2022 | Oct 1 2022 | Jan 1 2023 |

6,887,000

deaths

100k

50k

0

Source: World Health Organization

Data may be incomplete for the current day or week.

| Jan 1 2020 | Apr 1 2020 | Jul 1 2020 | Oct 1 2020 | Jan 1 2021 | Apr 1 2021 | Jul 1 2021 | Oct 1 2021 | Jan 1 2022 | Apr 1 2022 | Jul 1 2022 | Oct 1 2022 | Jan 1 2023 |

Situation by WHO Region

Daily   **Weekly**   **Cases**   Deaths   Count

"Exaggerating China's military spending, St. Louis Fed breaks all statistical rules with misleading graph"

Visualization in Python

As we've seen, the **datascience** module provides several functions to generate different kinds of plots – like the ones we've talked about – from the data in tables.

These functions are built on top of the popular **matplotlib** module.