

Data Visualization

Juraj Medzihorsky



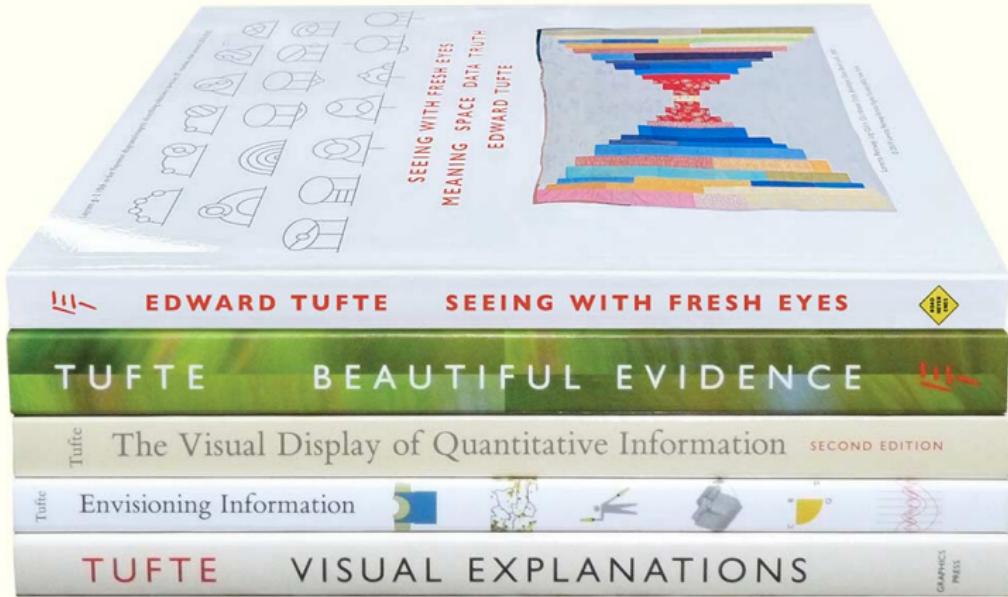
SGIA & RMC
Durham University

27 January 2022



Reynier Leyva Novo: *The Weight of History, Five Nights*
hirshhorn.si.edu/explore/reynier-leyva-novo-the-weight-of-history-five-nights/

EDWARD TUFTE



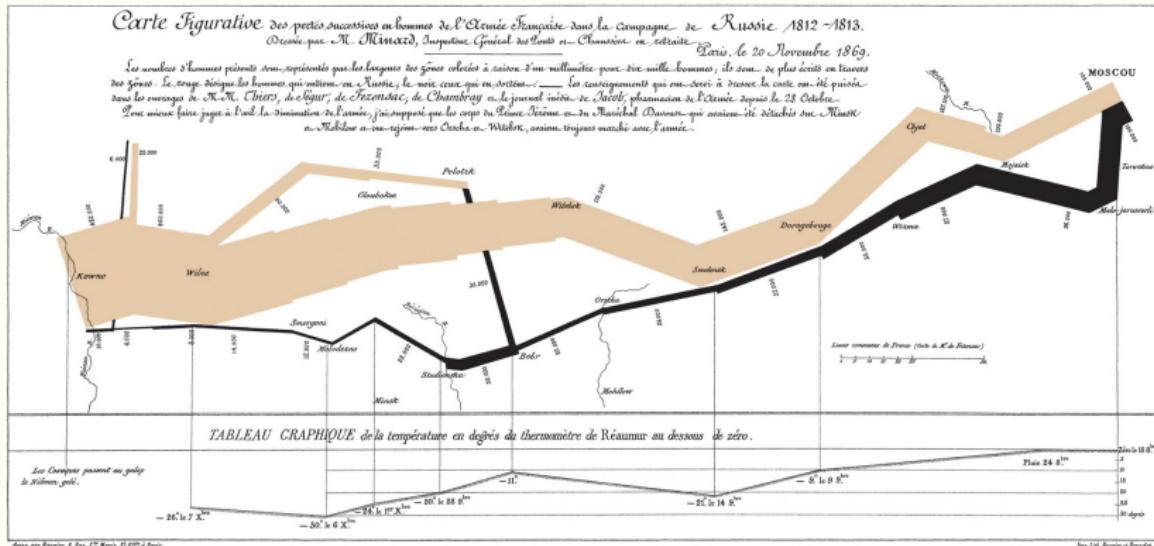
www.edwardtufte.com

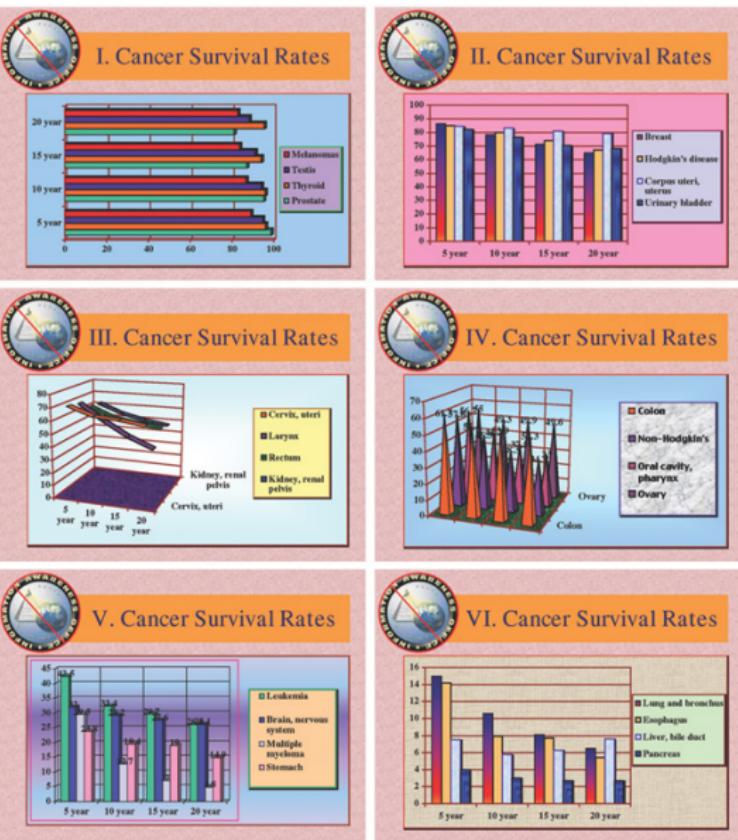
“Above all else show the data”

“A large share of ink on a graphic should present data-information, the ink changing as the data change. Data-ink is the non-erasable core of a graphic, the non-redundant ink arranged in response to variation in the numbers represented.”

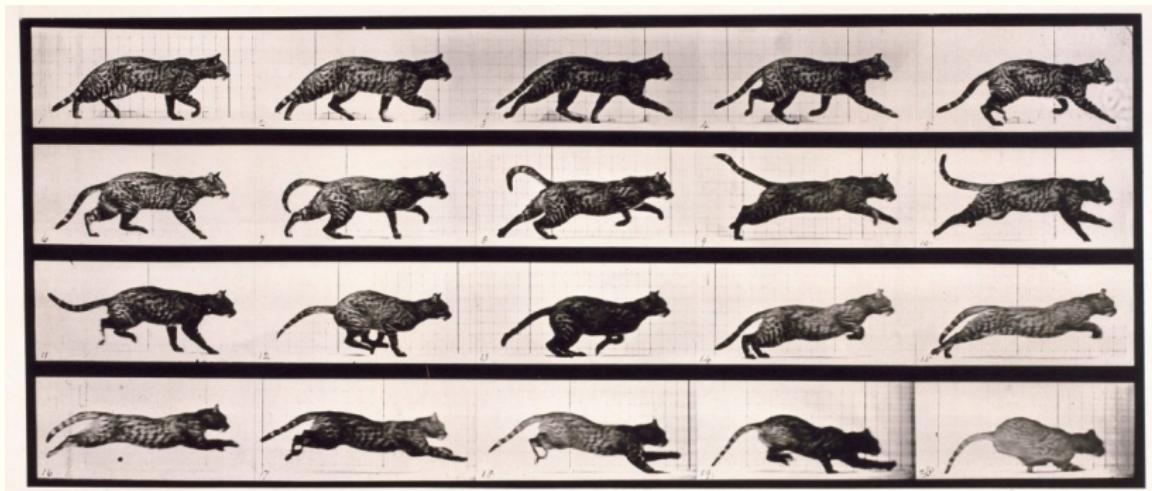
“At the heart of quantitative reasoning is a single question: Compared to what? Small multiple designs, multivariate and data bountiful, answer directly by visually enforcing comparisons of changes, of the differences among objects, of the scope of alternatives. For a wide range of problems in data presentation, small multiples are the best design solution.”

SHOW THE DATA





SMALL MULTIPLES





THE SHANNON-WEAVER MODEL OF COMMUNICATION

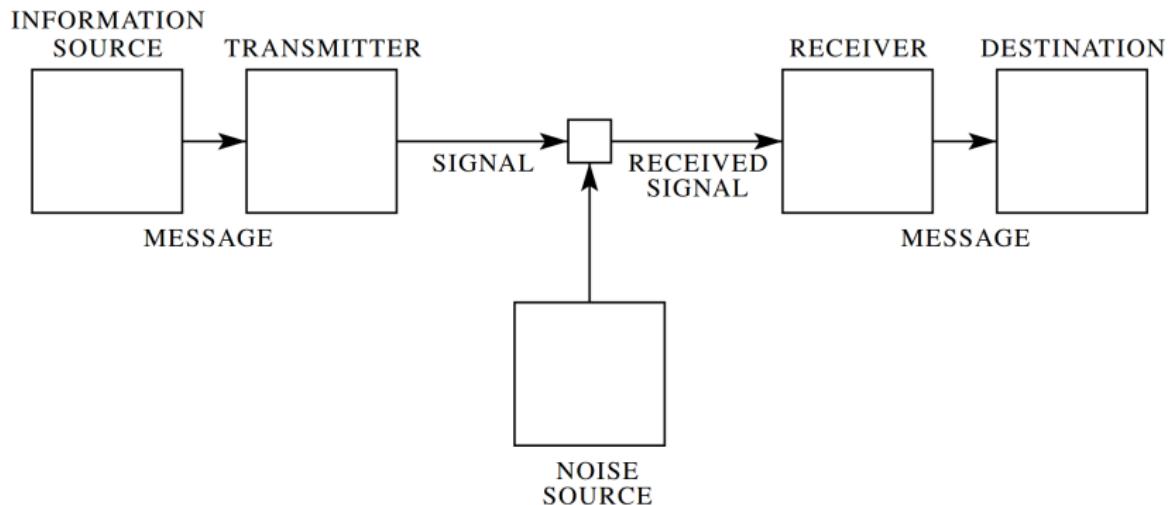


Fig. 1—Schematic diagram of a general communication system.

C.E. Shannon, *A Mathematical Theory of Communication*, 1949

ENCODING: FROM DATA TO (DIGITAL) INK

Space

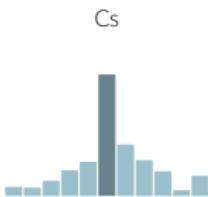
Shape

Text

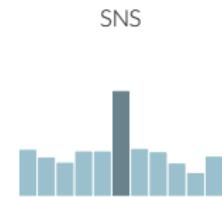
Color

BAR PLOTS

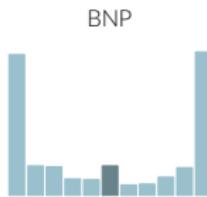
Spain 2014



Slovakia 2009



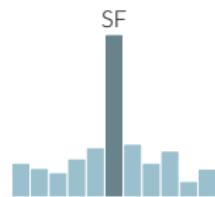
UK 2009



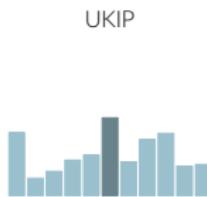
CpE



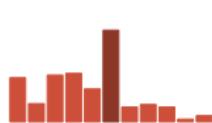
SF



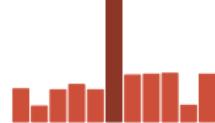
UKIP



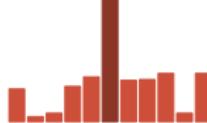
Self-Placement



Self-Placement



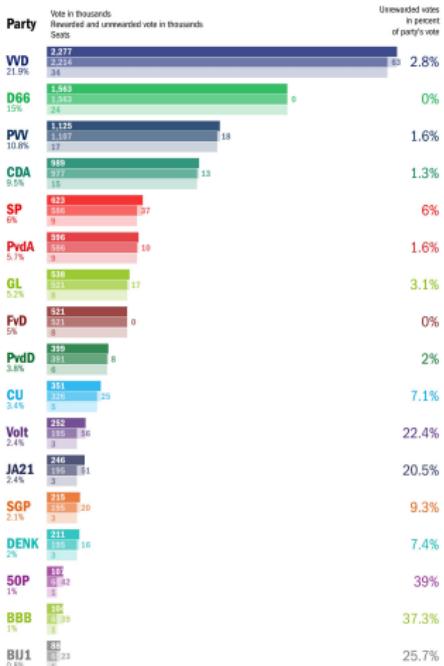
Self-Placement



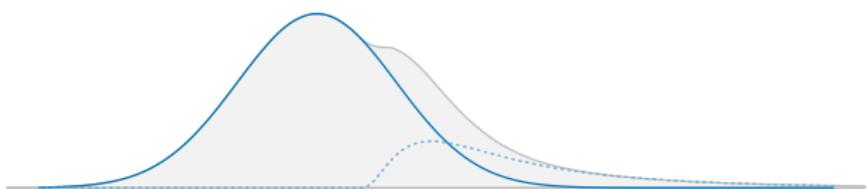
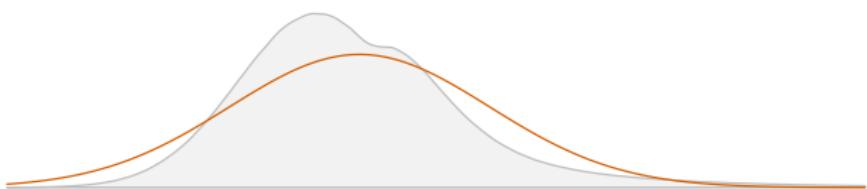
BAR PLOTS

2021 Dutch General Election

Disproportionality as embodied by the D'Hondt method

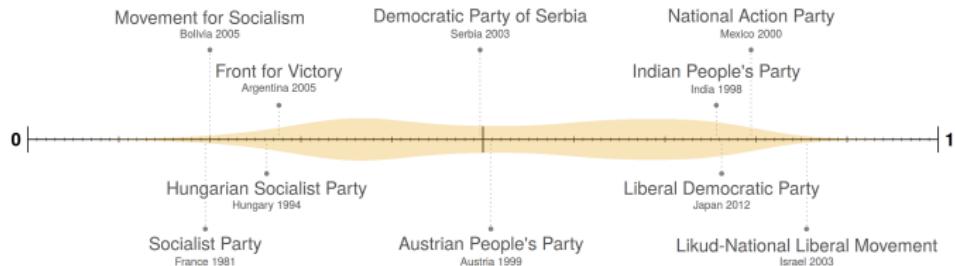


DENSITY PLOTS

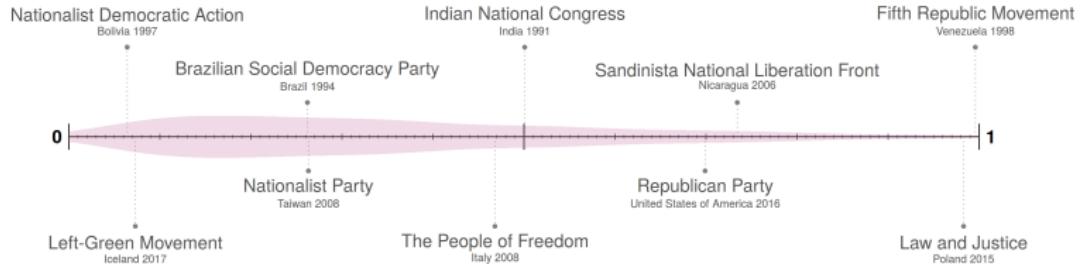


VIOLIN PLOTS

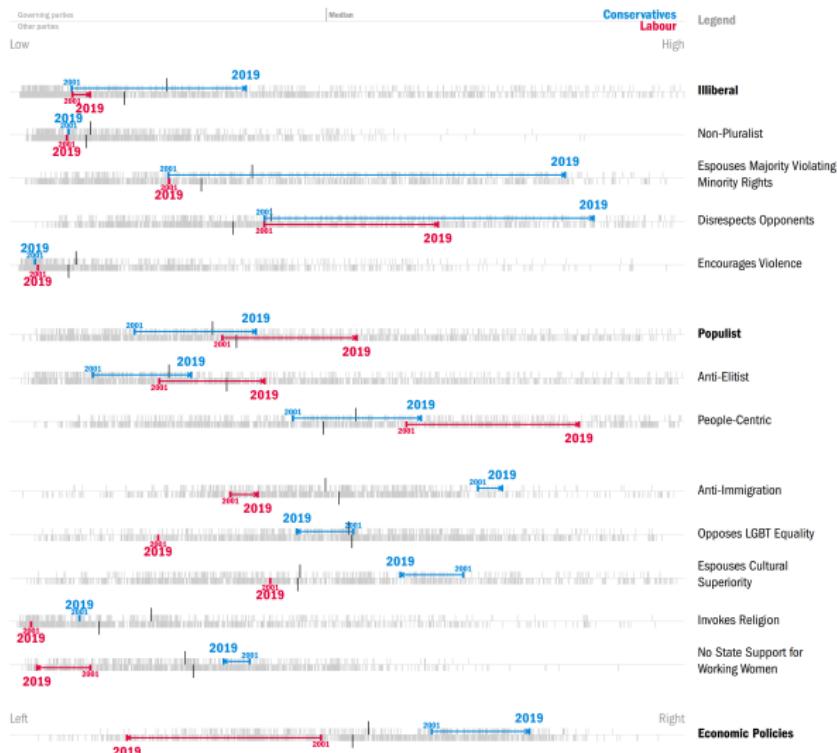
Economic Left-Right



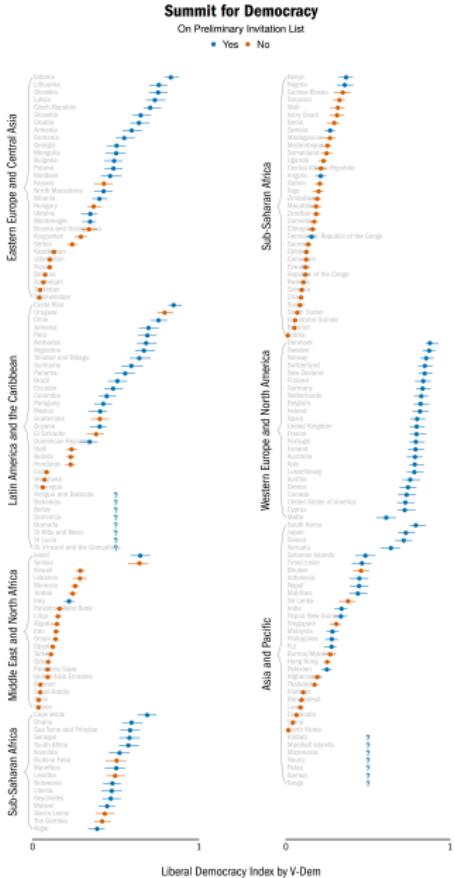
Populism



RUG PLOTS



DOT PLOT



CROSSTABS: SHADED TABLES

Best

		Constant		Swing		Residual			
		'66'		'70'		'66'		'70'	
N	Kingston upon Hull, North	C	20	20		0	1		
		L	29	29		1	0		
P	Lancashire, Newton	C	18	18		3	0	0	
		L	29	29	2		0	0	
U	Hertfordshire, Hertford	C	25	25		3	0	1	
		L	21	21	3		1	0	

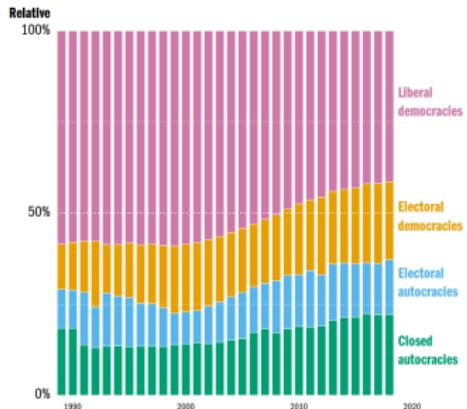
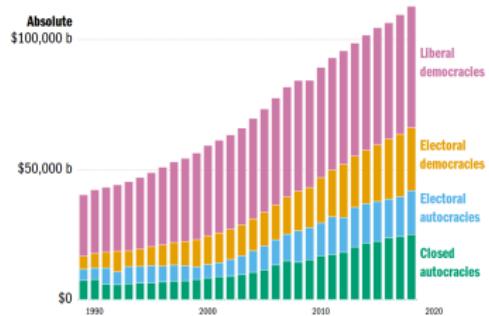
Worst

		Constant		Swing		Residual			
		'66'		'70'		'66'		'70'	
N	Merthyr Tydfil	C	8	8		3	0		
		L	24	24				33	
P	Merthyr Tydfil	C	7	7		1	4	0	
		L	24	24	2		31		
U	Merthyr Tydfil	C	6	6		2	5	0	
		L	24	24	2		31		

CROSSTABS: STACKED BARPLOTS

Global GDP by regime type

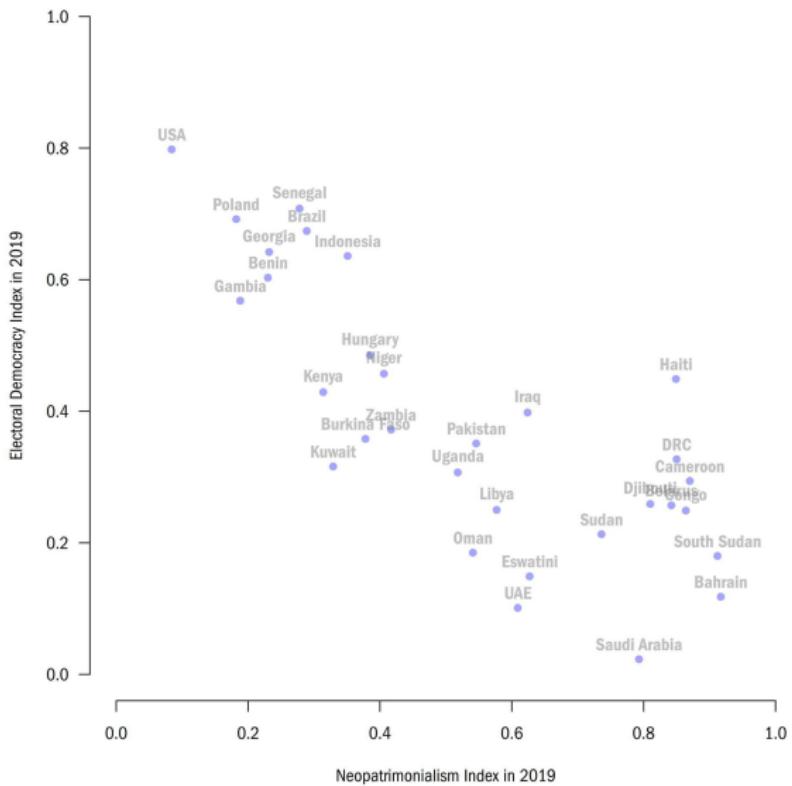
GDP: MPD and WB; Regimes: V-Dem V11



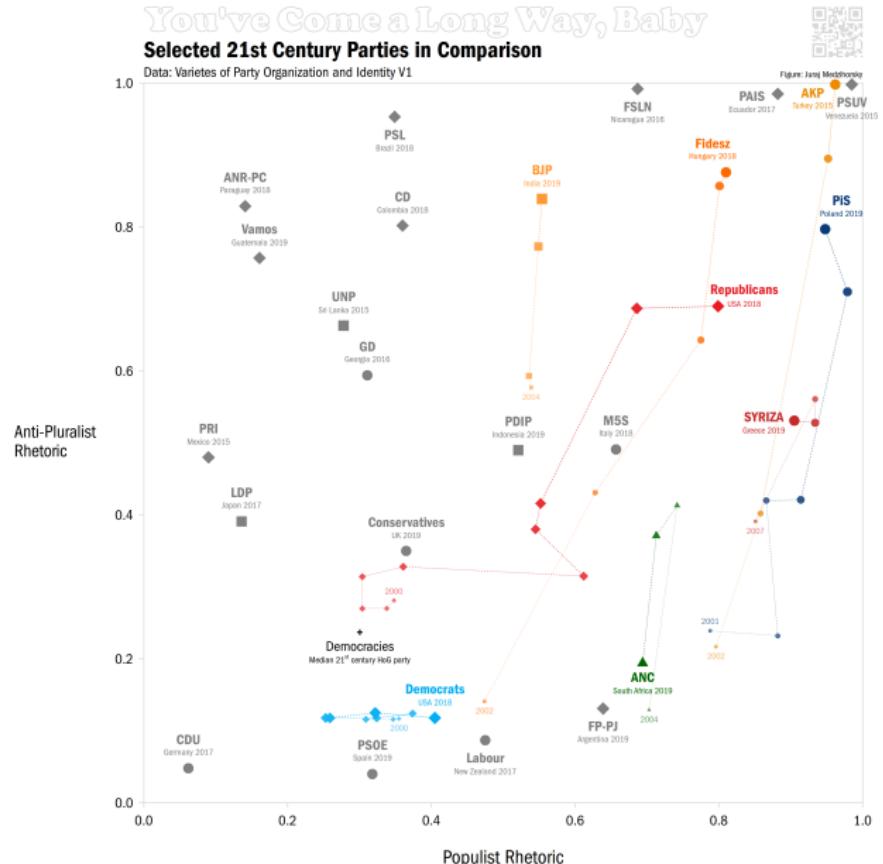
SCATTERPLOTS

Signatories of the "Geneva Consensus Declaration"

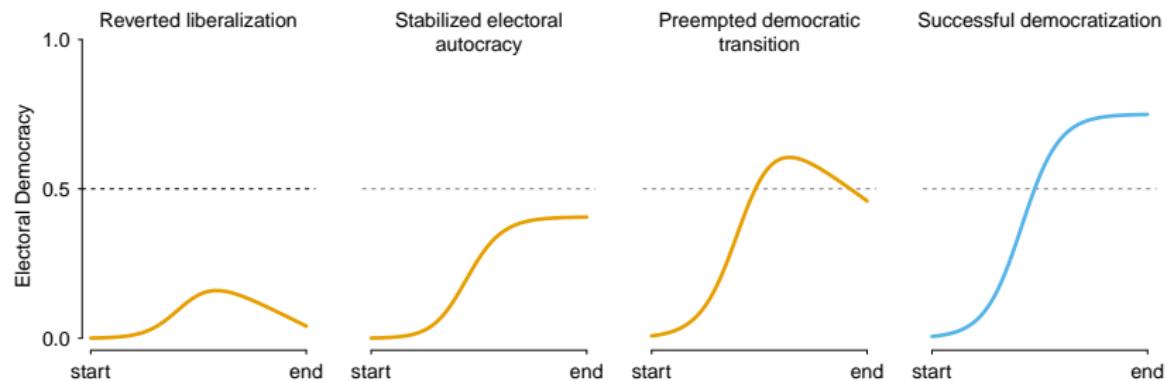
Data: V-Dem Dataset V10; Nauru is missing



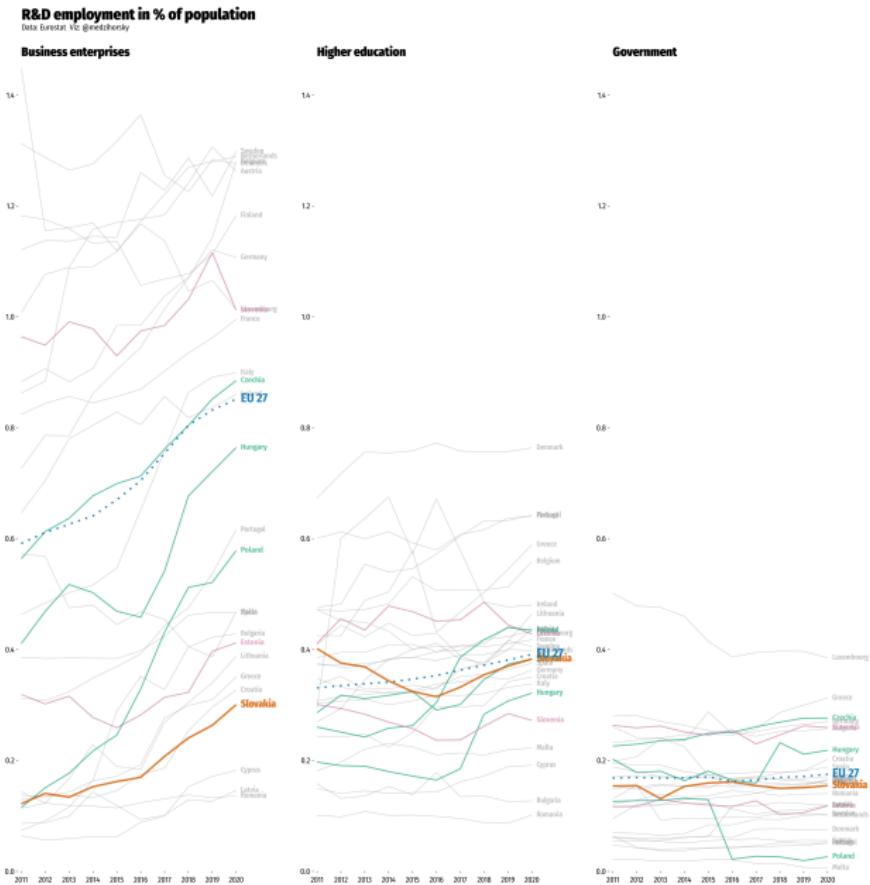
SCATTERPLOTS WITH TIME SERIES



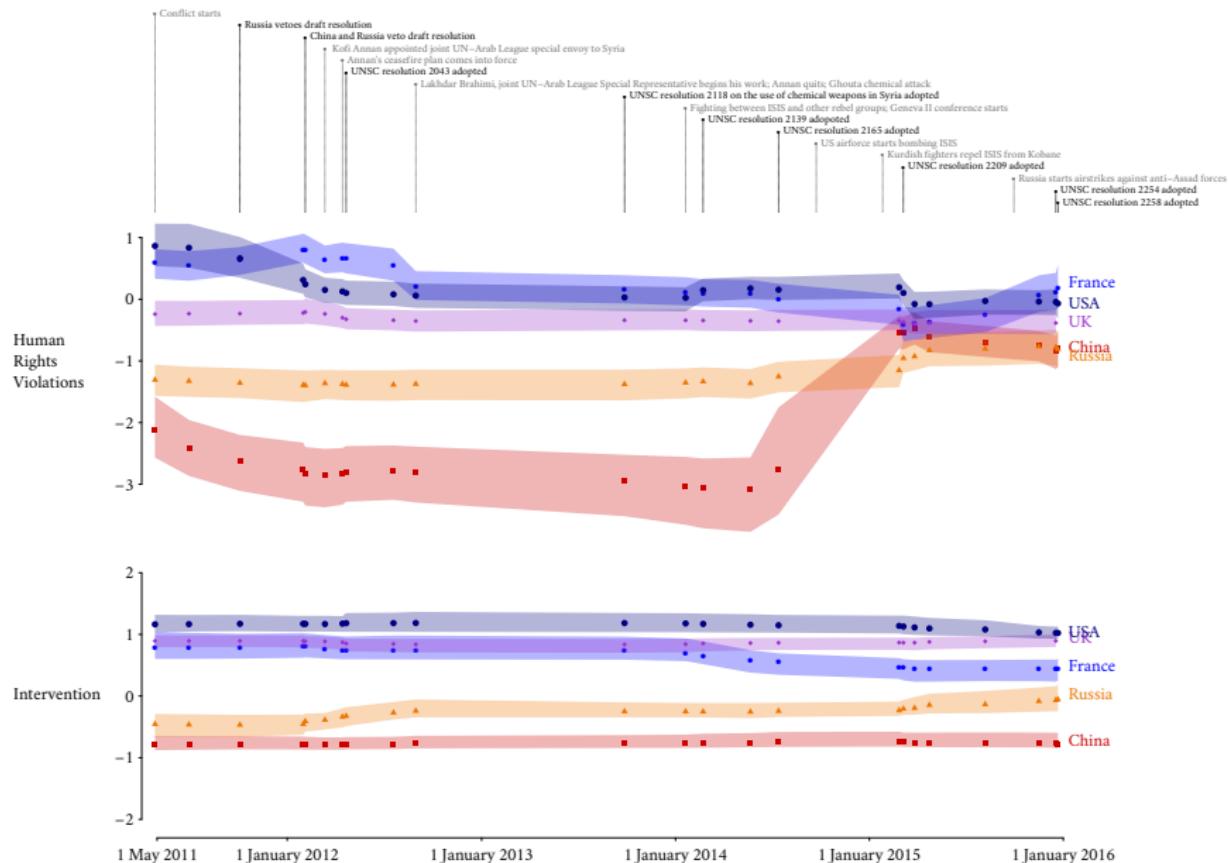
TIME SERIES: SMALL MULTIPLES



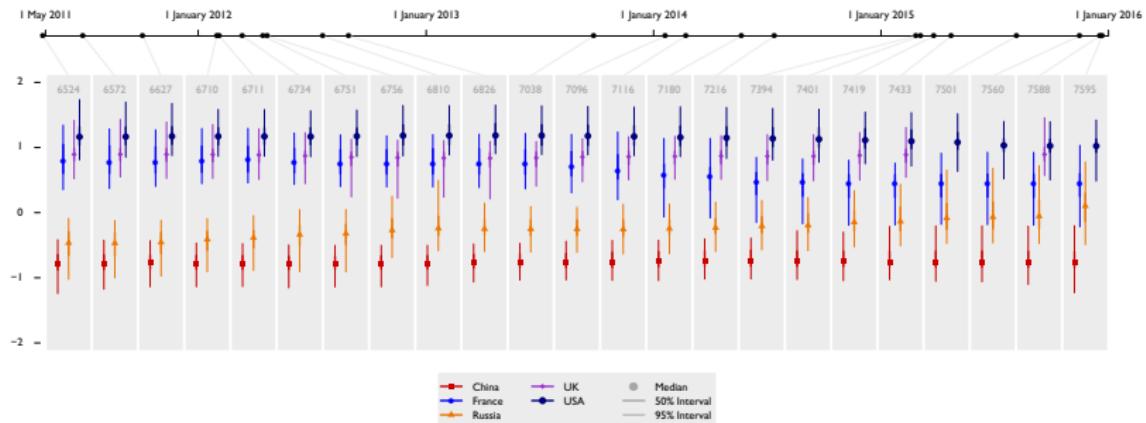
TIME SERIES: SMALL MULTIPLES



TIME SERIES: UNCERTAINTY



TIME SERIES: UNCERTAINTY



VISUALIZING UNCERTAINTY: CONFIDENCE INTERVALS

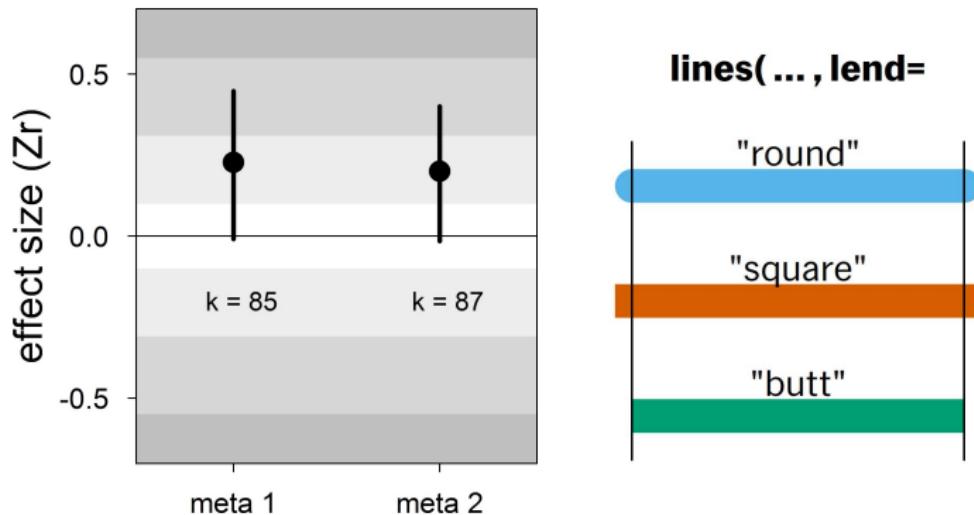
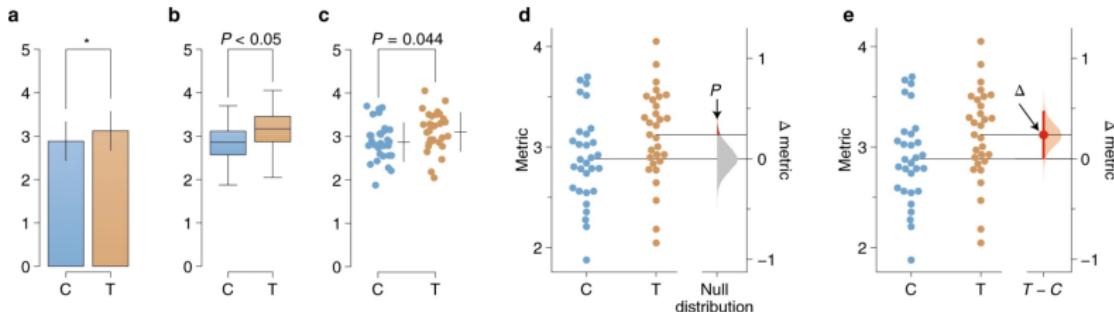


Figure on the left from 10.7554/eLife.37385

VISUALIZING UNCERTAINTY: GROUP COMPARISONS

From: [Moving beyond *P* values: data analysis with estimation graphics](#)



a. Two-group data with control (C) and test (T) groups presented in a bar chart. **b.** The same data presented as a box plot. **c.** This scatter plot shows the observed values along with descriptive statistics (mean and s.d.) but does not illustrate effect size. **d.** A two-group comparison with complete visualization of the NHST perspective. The filled curve on the difference axis indicates the distribution of the mean difference under the null hypothesis. Here the null distribution was constructed with permutation of observed data. By definition, this distribution has a mean difference of zero. The area of the red segment indicates the P value (for one-sided testing). **e.** An estimation graphic using the difference axis to display an effect size, here the mean difference (Δ). The curve indicates the resampled distribution of Δ , given the observed data. Horizontally aligned with the mean of the test group, Δ is indicated by the red circle. The 95% confidence interval of Δ is illustrated by the red vertical line. We propose calling such graphics ‘Gardner–Altman plots’, after their originators.

Ho et al. (2019) *Moving beyond *P* values: data analysis with estimation graphics*

github.com/ACCLAB/DABEST-python

VISUALIZING UNCERTAINTY: WHAT WORKS BEST?

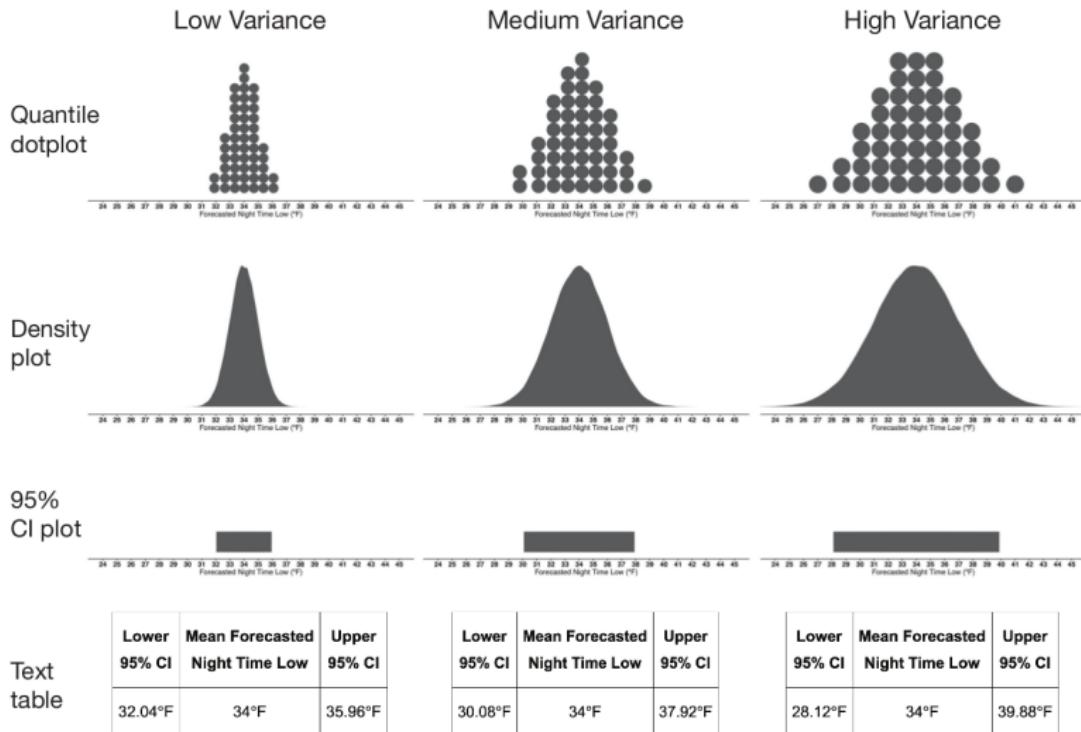


Fig. 4. Example low-, medium-, and high-variance stimuli from the study.

10.31234/osf.io/wpz8b

VISUALIZING UNCERTAINTY: WHAT WORKS BEST?

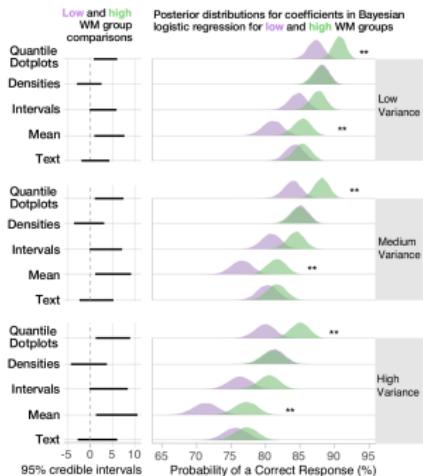


Fig. 5. 95% credible intervals and posterior distributions for multilevel Bayesian logistic regression modeling accuracy for each communication type and variance level (n.b., ** indicates a reliable difference between high- and low-working-memory groups).

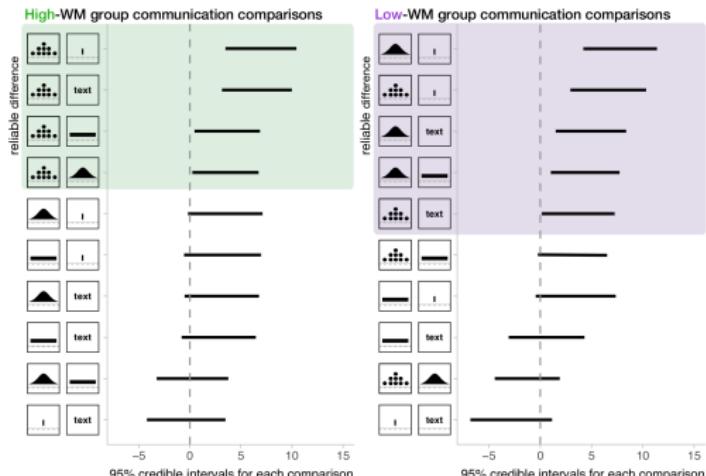


Fig. 6. 95% credible intervals for comparisons between each visualization type ordered from most to least reliable, for participants with (a) high-working memory and (b) low-working memory.

10.31234/osf.io/wpz8b

MAPS

Belgium 1995

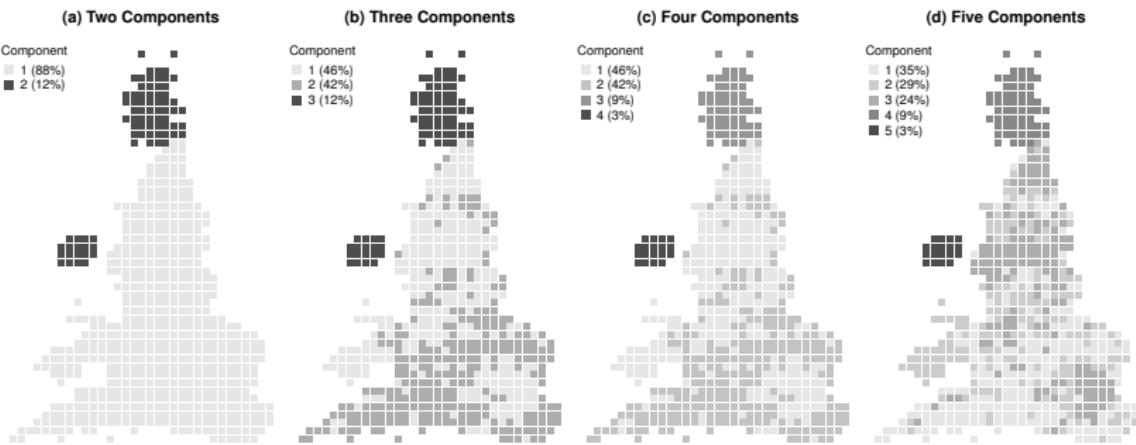


(a) Two Components



(b) Three Components

TILED CARTOGRAMS



POLYGON CARTOGRAMS

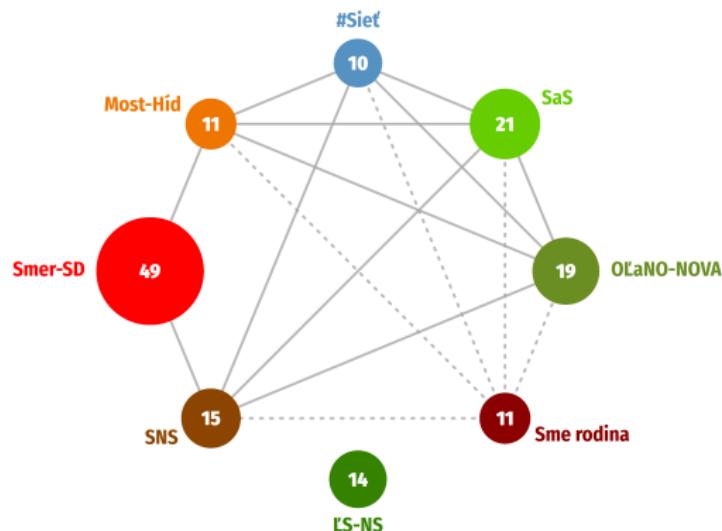


NETWORK DIAGRAMS

Slovakian Elections 2016

Coalition Options

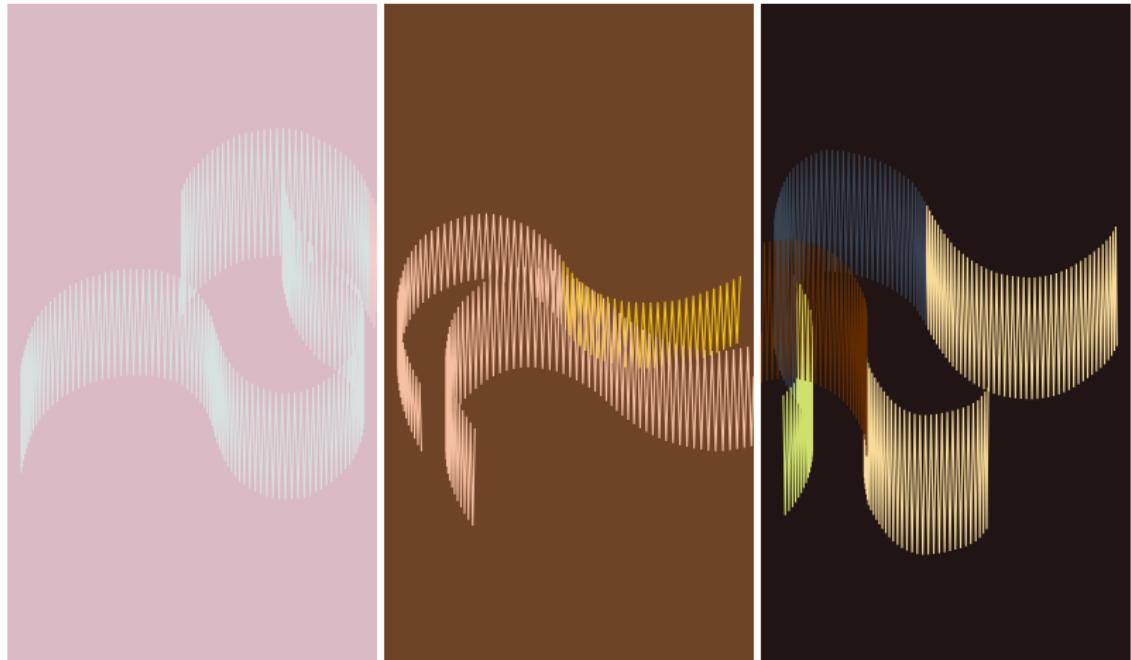
7 March, Evening



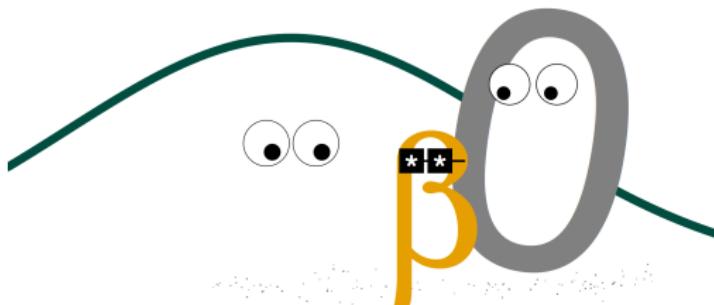
Mutual interest in

— governing together - - - parliamentary support

R CAN DO MANY OTHER THINGS



R CAN DO MANY OTHER THINGS



AESTHETICS AND CREDIBILITY

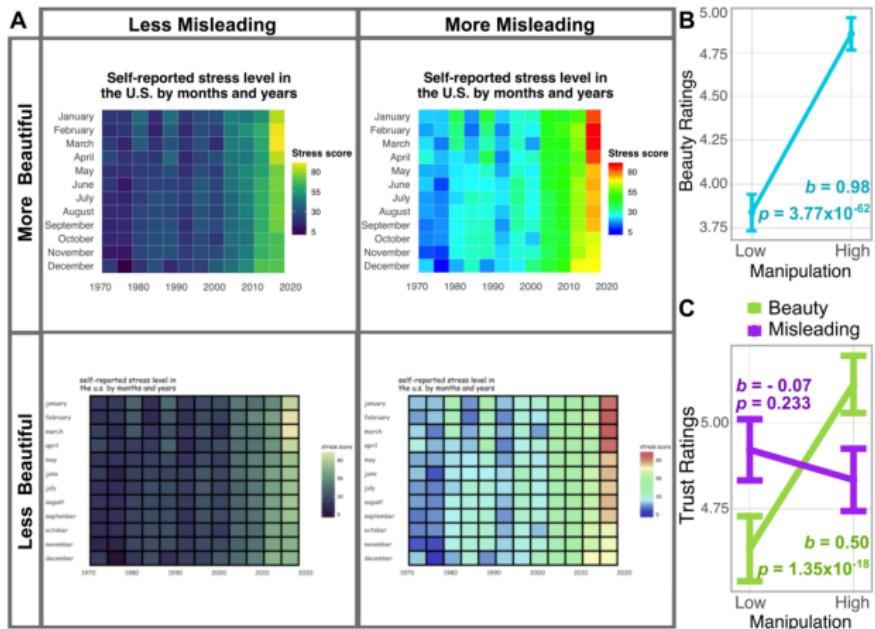
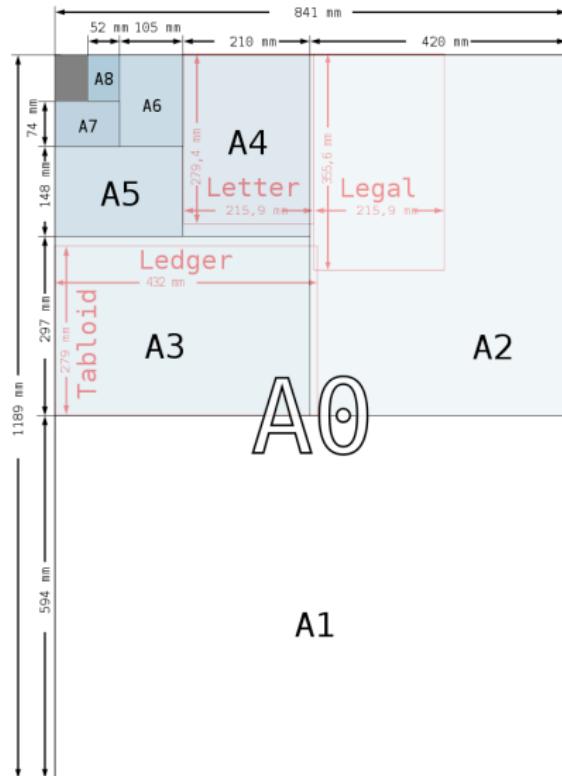


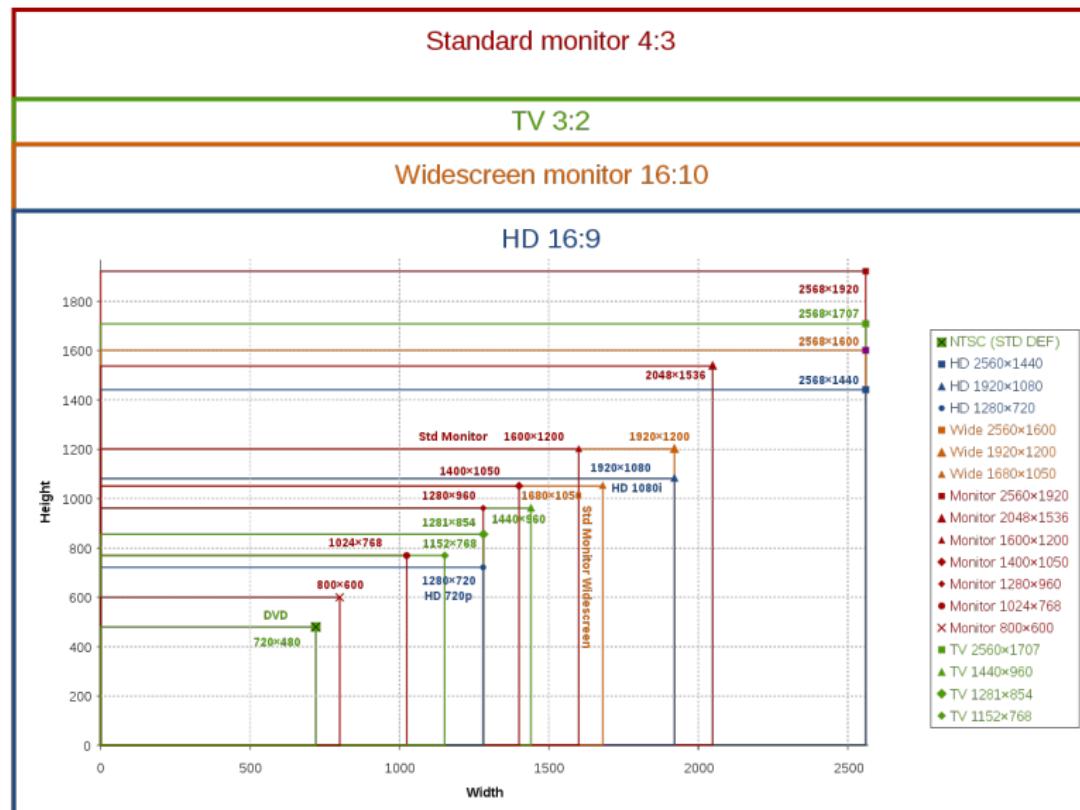
Figure 4. Causal effects of beauty on trust in Study 4. (A) Manipulations of an example graph of a specific type and topic in four experimental conditions. (B) Manipulation check of beauty.

Lin and Thornton (2022) *Fooled by beautiful data: Visualization aesthetics bias trust in science, 2 news, and social media*

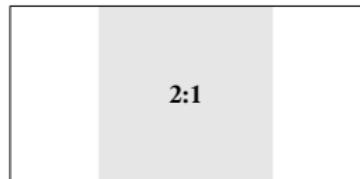
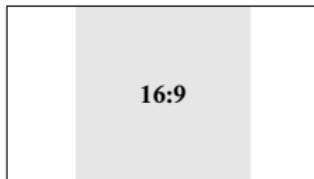
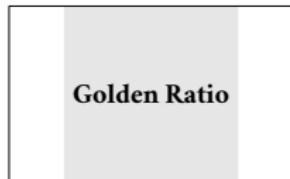
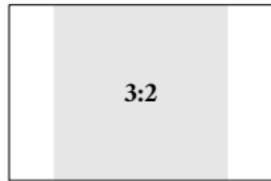
ASPECT RATIOS AND RESOLUTIONS: PAGES



ASPECT RATIOS AND RESOLUTIONS: COMPUTER SCREENS



Aspect ratios: landscape



ASPECT RATIOS AND RESOLUTIONS: SMARTPHONES

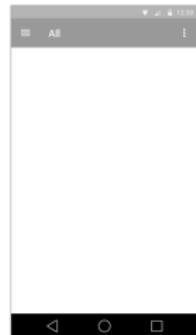
Android screen resolution comparison



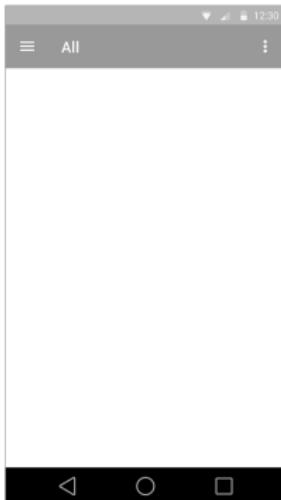
320 x 480px
Density: MDPI



480 x 960px
Density: XHDPI



720 x 1280px
Density: XHDPI



1080 x 1920px
"HD" Density: XXHDPI

Aspect ratios: portrait

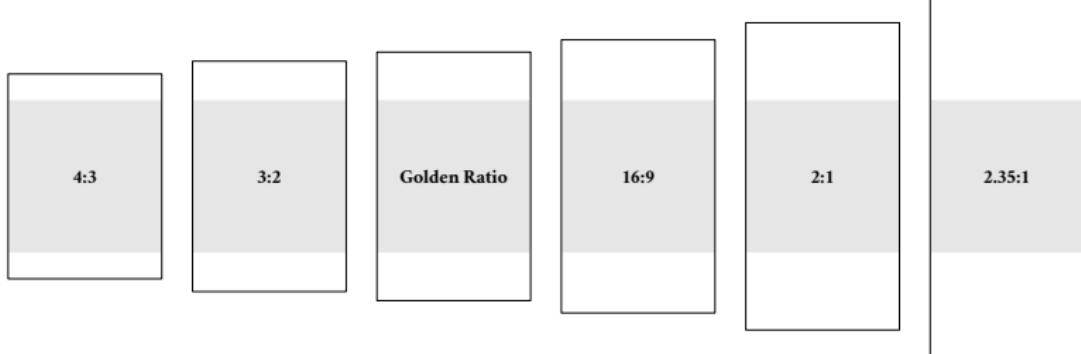
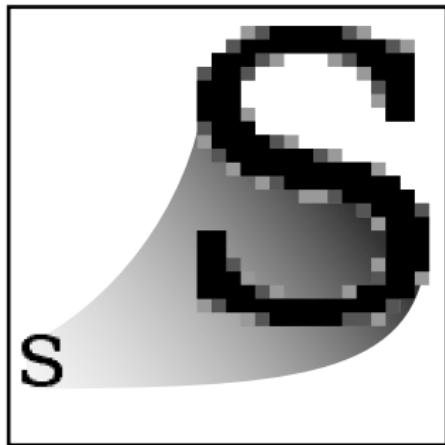
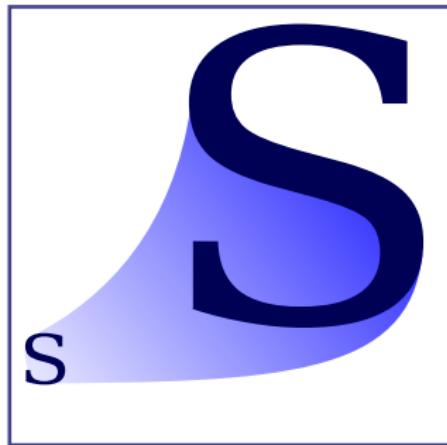


IMAGE FORMATS: RASTER AND VECTOR



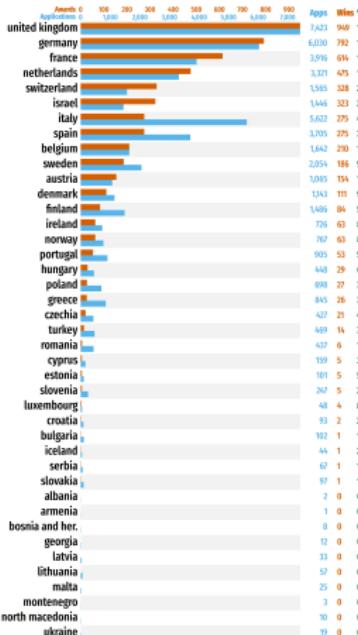
Raster
GIF, JPEG, PNG



Vector
SVG

RASTER IMAGES: COMPRESSION ALGORITHMS

ERC Starting Grant 2007-2020
Applications and Awards by Country



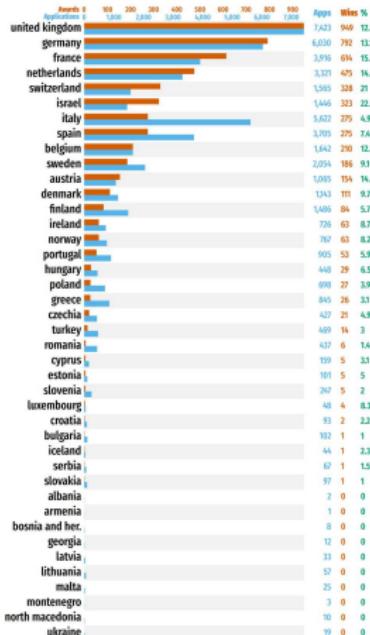
Data: European Research Council

Graph by @medibsony

PNG

493kB

ERC Starting Grant 2007-2020
Applications and Awards by Country

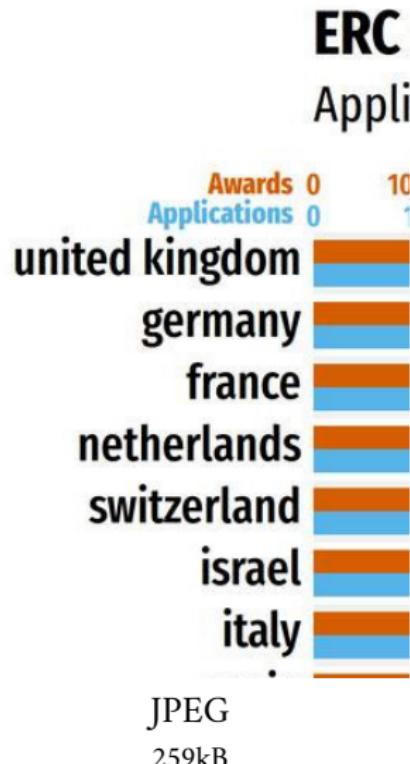
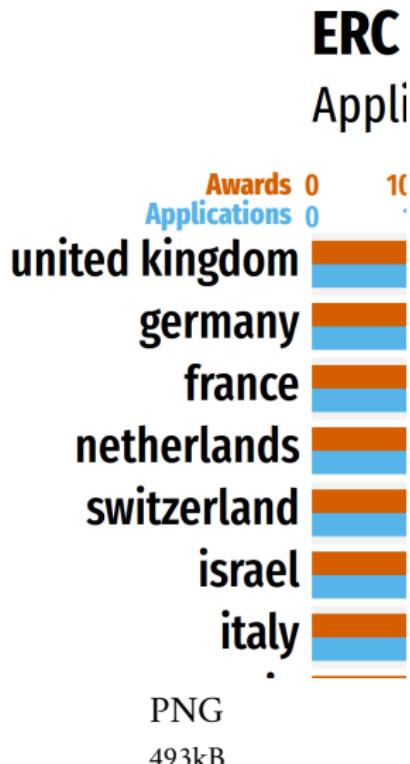


Data: European Research Council

Graph by @medibsony

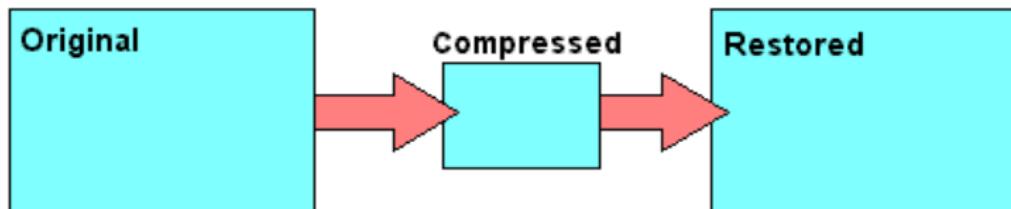
JPEG

259kB

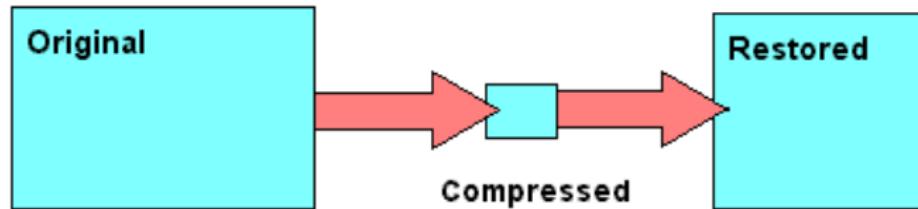


RASTER IMAGES: COMPRESSION ALGORITHMS

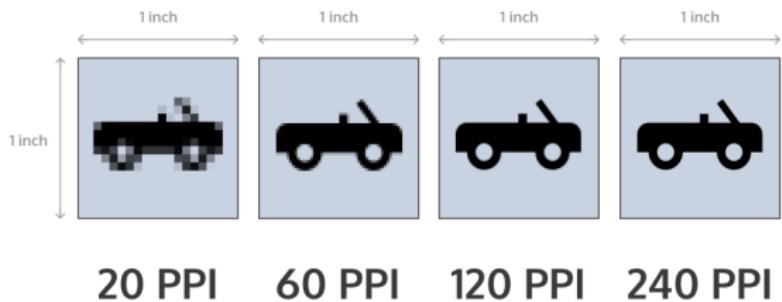
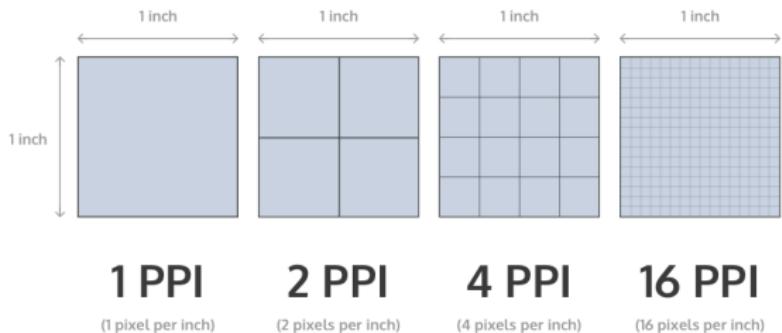
LOSSLESS



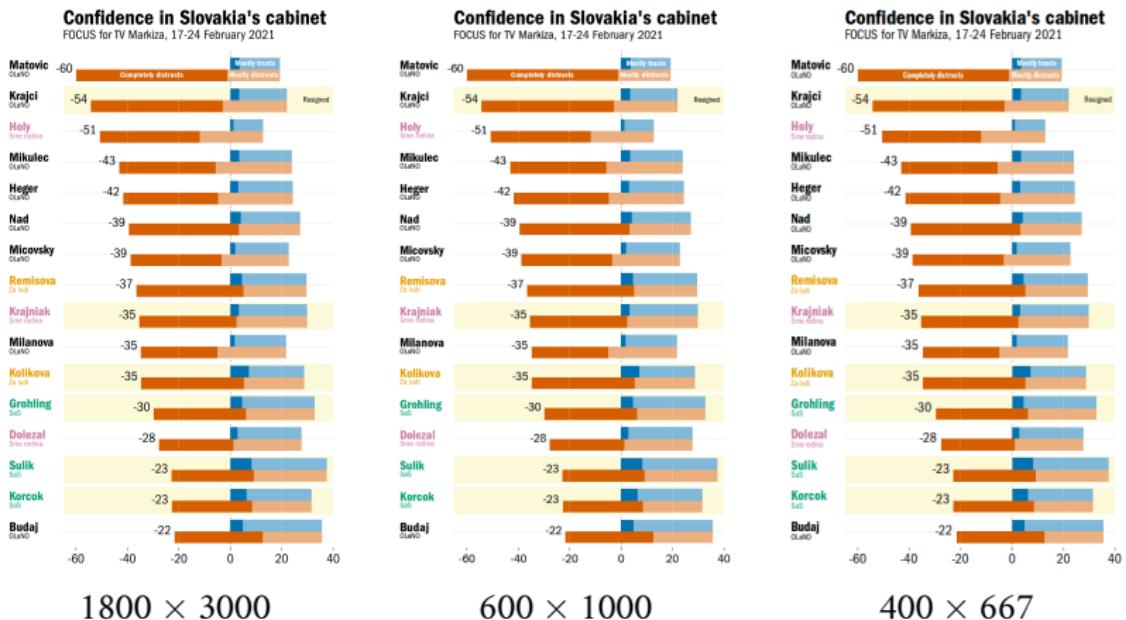
LOSSY



RASTER IMAGES: PIXELS PER INCH



RASTER IMAGES: PIXELS PER INCH



RASTER IMAGES: PIXELS PER INCH

Confidence

FOCUS for 1

Matovic
OLaNO -60

Krajci
OLaNO -54

Holy
Sme rodina -51

Mikulec
OLaNO -43

Heger
OLaNO -42

Nad
OLaNO -3

600 × 1200

1800 × 3000

Confidence

FOCUS for 1

Matovic
OLaNO -60

Krajci
OLaNO -54

Holy
Sme rodina -51

Mikulec
OLaNO -43

Heger
OLaNO -42

Nad
OLaNO -3

200 × 400

600 × 1000

Confidence

FOCUS for 1

Matovic
OLaNO -60

Krajci
OLaNO -54

Holy
Sme rodina -51

Mikulec
OLaNO -43

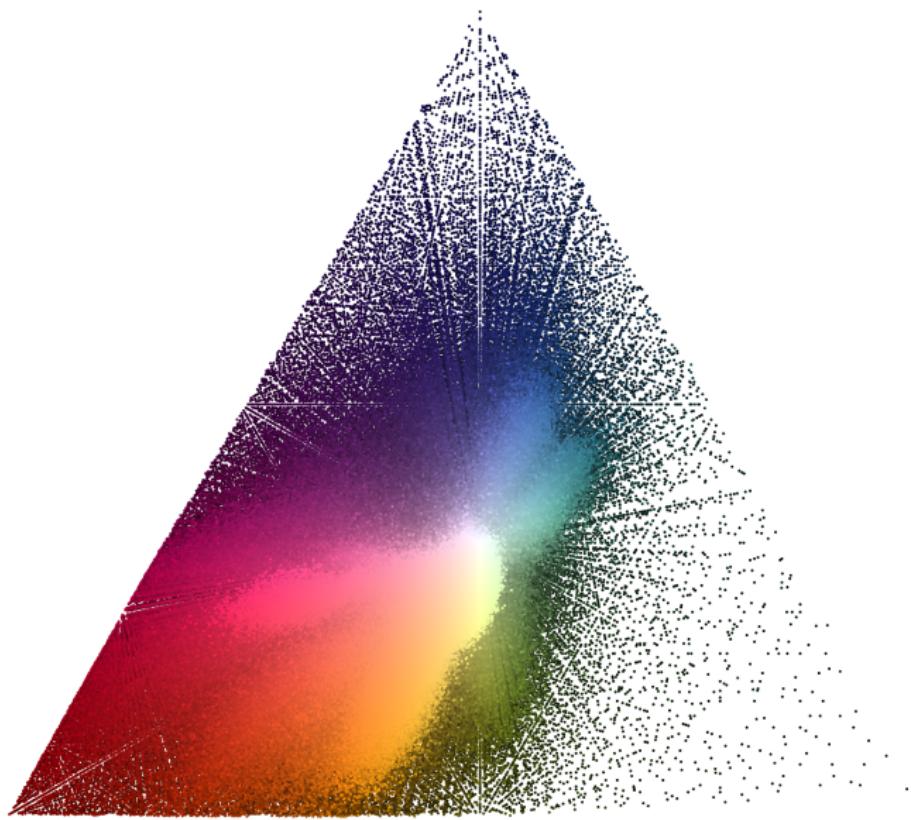
Heger
OLaNO -42

Nad
OLaNO -3

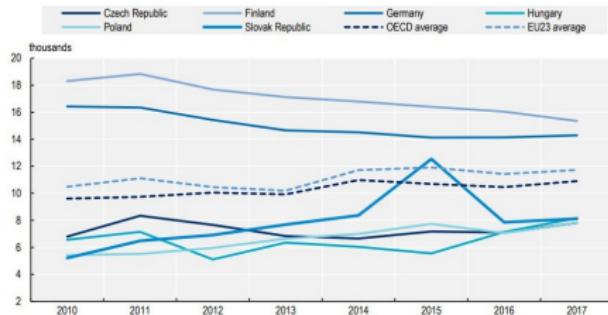
133 × 267

400 × 667

COLOR PALETTES



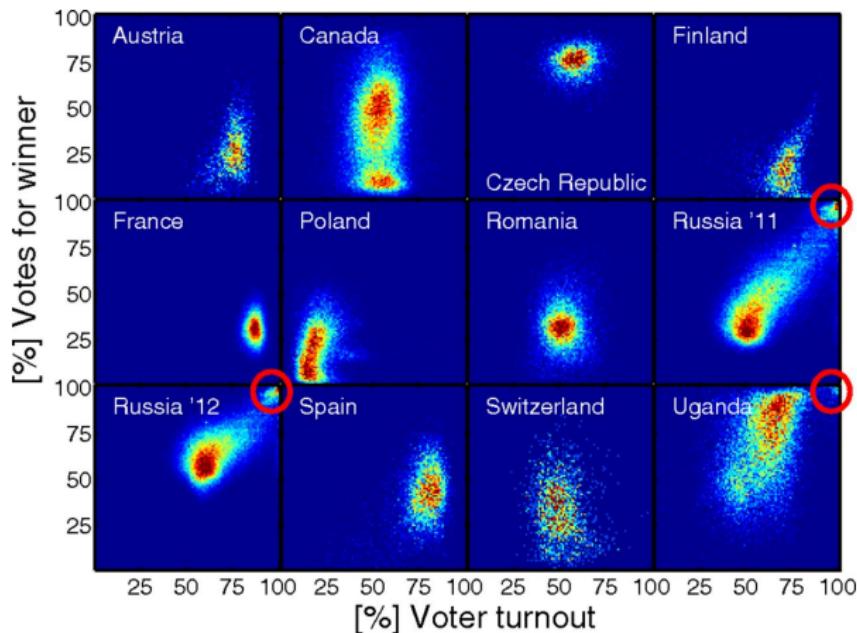
COLOR PALETTES: WHAT NOT TO DO



Graf: OECD

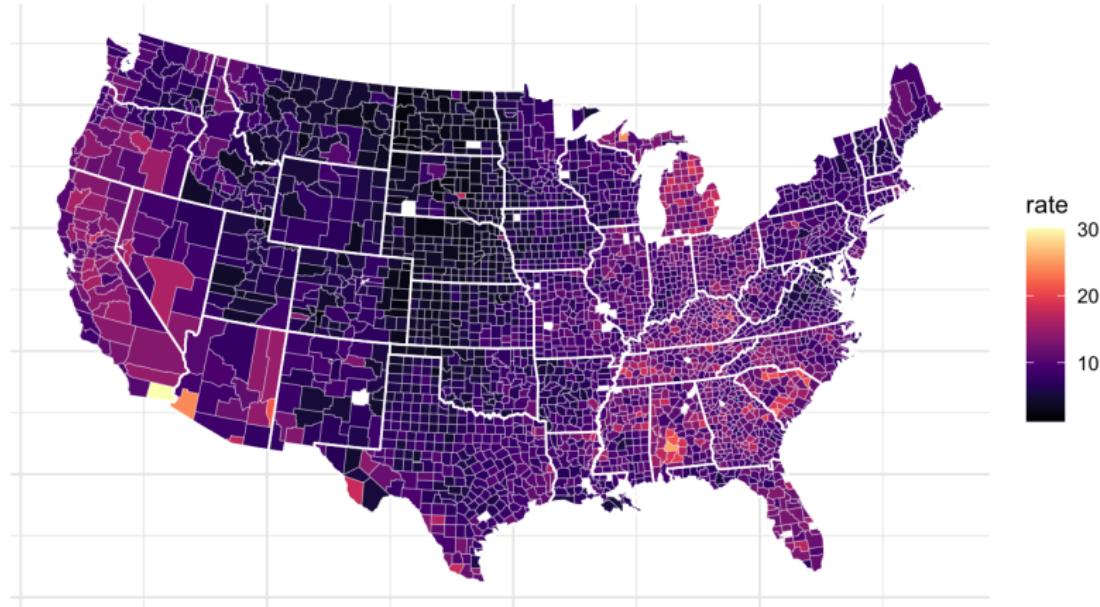


COLOR PALETTES: SOFTWARE DEFAULTS AND DISCIPLINARY CULTURES



COLOR PALETTES: SOFTWARE DEFAULTS AND DISCIPLINARY CULTURES

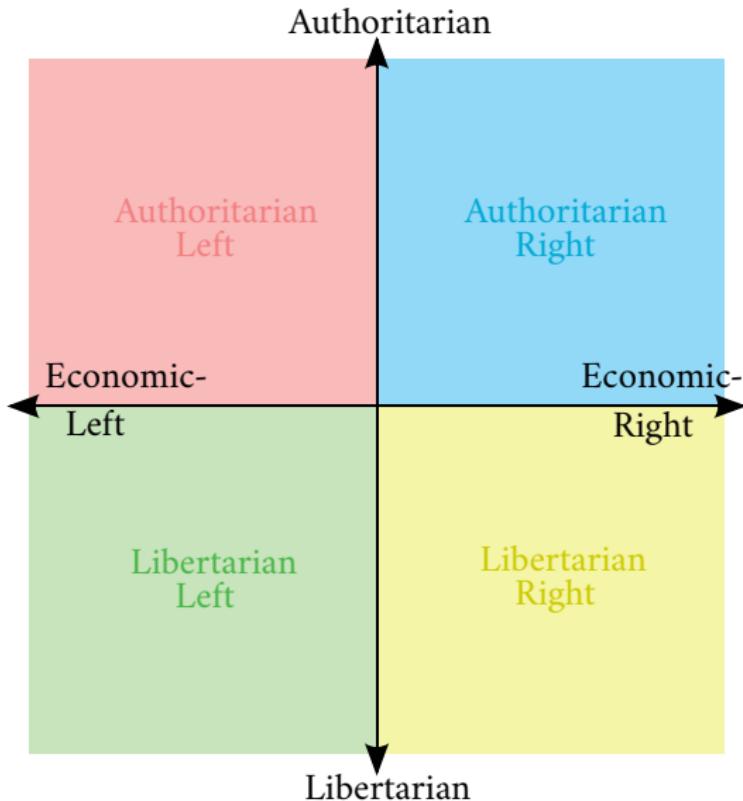
US unemployment rate by county



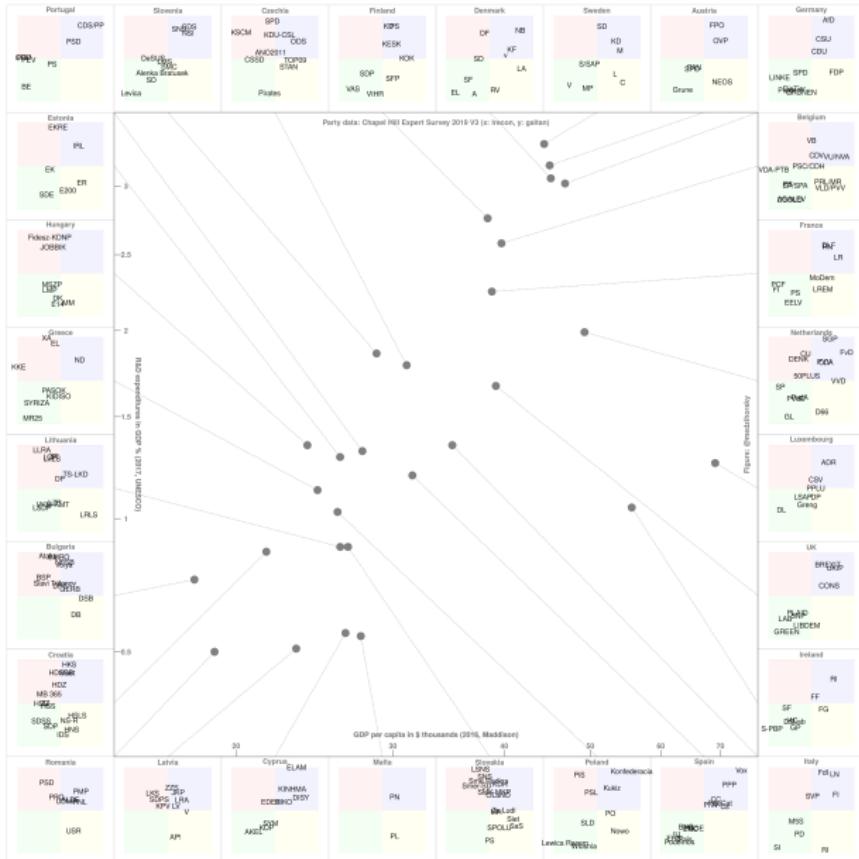
a viridis palette

cran.r-project.org/web/packages/viridis/vignettes/intro-to-viridis.html

COLOR VOCABULARIES



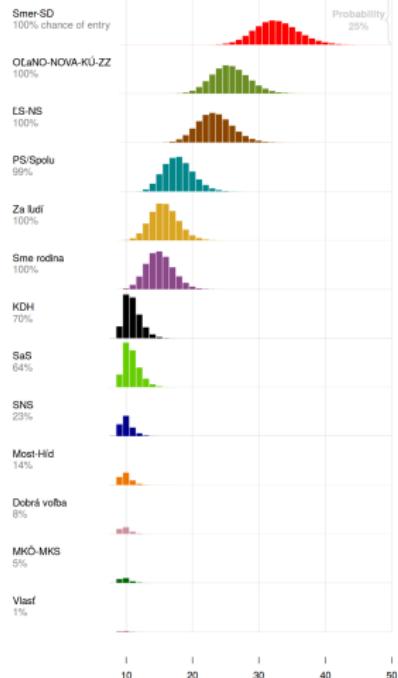
COLOR VOCABULARIES



COLOR VOCABULARIES

Bayesian seat projections

Based on 6.–12.2.2020 FOCUS survey
@medzihorsky



Ordinary People and Independent Personalities

Obyčajní ľudia a nezávislé osobnosti



a nezávislé osobnosti

Abbreviation	OĽaNO
Leader	Igor Matovič
Parliamentary leader	Michal Šipoš
Founder	Igor Matovič
Founded	28 October 2011; 10 years ago
Split from	Freedom and Solidarity
Headquarters	Zámocká 6873/14, 81101 Bratislava
Membership (2020)	~ 55
Ideology	Populism Anti-corruption Social conservatism
Political position	Centre to centre-right
National affiliation	OĽANO-NOVA-KÚ-ZZ-DÚS
European Parliament group	European People's Party
Colours	Green Grey
National Council	43 / 150
European Parliament	1 / 14
Regional Governors	2 / 8
Regional MPs	22 / 408
Mayors	54 / 2,904
Local MPs	752 / 20,646
Website	obyčajnilidia.sk
<hr/>	
Politics of Slovakia	
Political parties	
Elections	

COLOR PALETTES: ORGANIZATIONAL DESIGN MANUALS

GOV.UK Design System

Get started Styles Components Patterns Community

Colour
Images
Layout
Page template
Spacing
Typography

Styles

Colour

Always use the GOV.UK colour palette.

Colour contrast

You must make sure that the contrast ratio of text and interactive elements in your service meets [level AA of the Web Content Accessibility Guidelines \(WCAG 2.1\)](#).

Main colours

If you are using GOV.UK Frontend or the GOV.UK Prototype Kit, use the [Sass variables](#) provided rather than copying the hexadecimal (hex) colour values. For example, use `$govuk-brand-colour` rather than `#1d70b8`. This means that your service will always use the most recent colour palette whenever you update.

Only use the variables in the context they're designed for. In all other cases, you should reference the [colour palette](#) directly. For example, if you wanted to use red, you should use `govuk-colour("red")` rather than `$govuk-error-colour`.

Text

	<code>\$govuk-text-colour</code>	<code>#0b0c0c</code>
	<code>\$govuk-secondary-text-colour</code>	<code>#505a5f</code>

Links

	<code>\$govuk-link-colour</code>	<code>#1d70b8</code>
	<code>\$govuk-link-hover-colour</code>	<code>#003078</code>
	<code>\$govuk-link-visited-colour</code>	<code>#4c2c92</code>
	<code>\$govuk-link-active-colour</code>	<code>#0b0c0c</code>

COLOR PALETTES: OTHER SOURCES

Palettes

Bottle Rocket (1996)

```
wes_palette("BottleRocket1")
```



```
wes_palette("BottleRocket2")
```



Rushmore (1998)

```
wes_palette("Rushmore1")
```

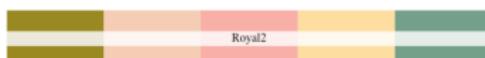


The Royal Tenenbaums (2001)

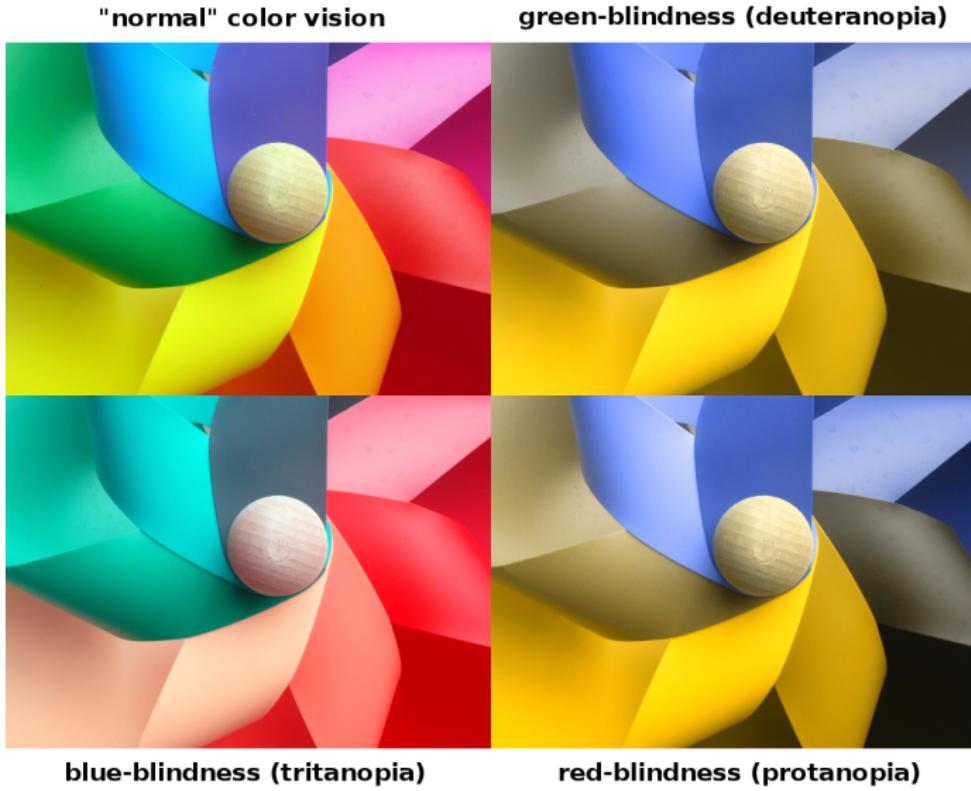
```
wes_palette("Royal1")
```



```
wes_palette("Royal2")
```



COLOR PALETTES: ACCESSIBILITY



commons.wikimedia.org/wiki/File:Red_to_Green_Color_Blindness.png

COLOR PALETTES: ACCESSIBILITY

Published: 27 May 2011

Points of view: Color blindness

Bang Wong

Nature Methods 8, 441 (2011) | [Cite this article](#)

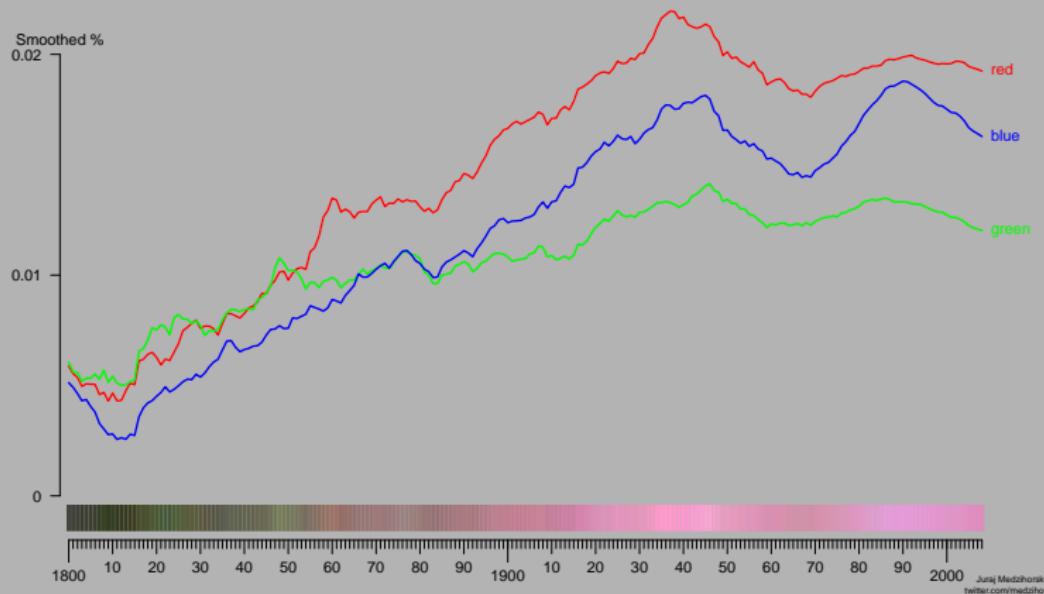
63k Accesses | 117 Citations | 234 Altmetric | [Metrics](#)

Since my first column on color coding¹ appeared, we have received a number of e-mails asking us to highlight the issue of color blindness. One of those correspondences was published in the October 2010 issue². Here I offer guidelines to make graphics accessible to those with color vision deficiencies.

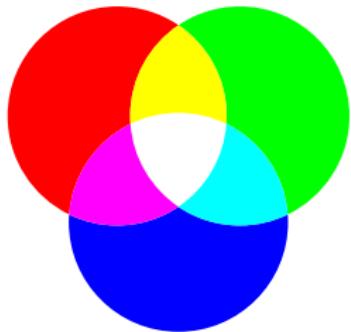
Color	Color name	RGB (1–255)	CMYK (%)	P	D
	Black	0, 0, 0	0, 0, 0, 100		
	Orange	230, 159, 0	0, 50, 100, 0		
	Sky blue	86, 180, 233	80, 0, 0, 0		
	Bluish green	0, 158, 115	97, 0, 75, 0		
	Yellow	240, 228, 66	10, 5, 90, 0		
	Blue	0, 114, 178	100, 50, 0, 0		
	Vermillion	213, 94, 0	0, 80, 100, 0		
	Reddish purple	204, 121, 167	10, 70, 0, 0		

RED, GREEN, AND BLUE

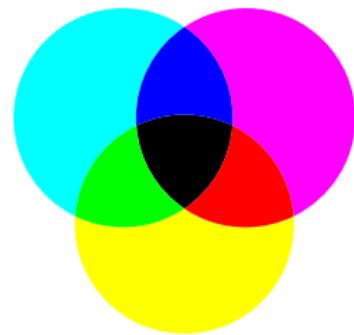
Red, Green, and Blue in Google Books English Fiction Corpus



RED, GREEN, AND BLUE

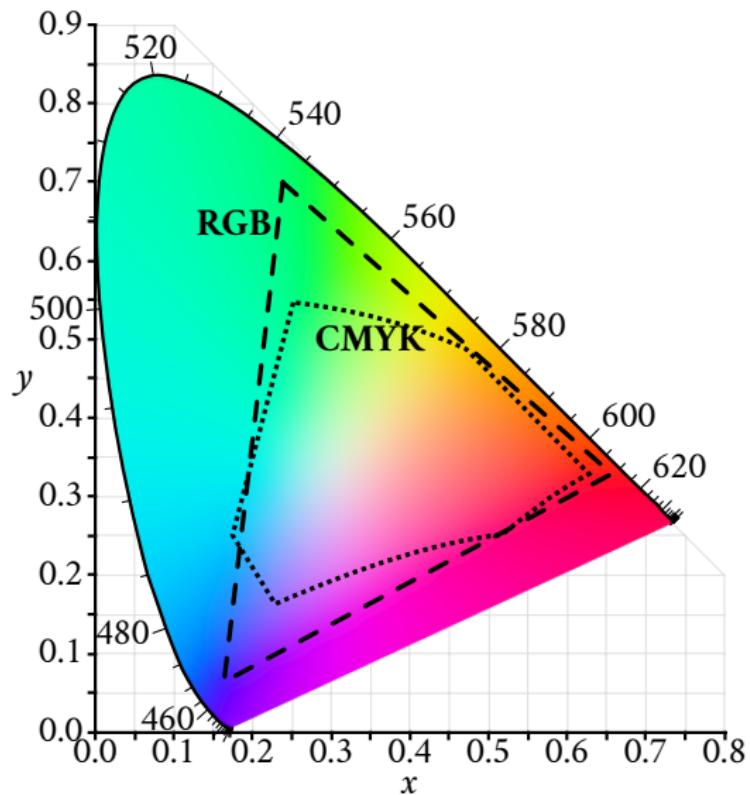


RGB



CMYK

RED, GREEN, AND BLUE

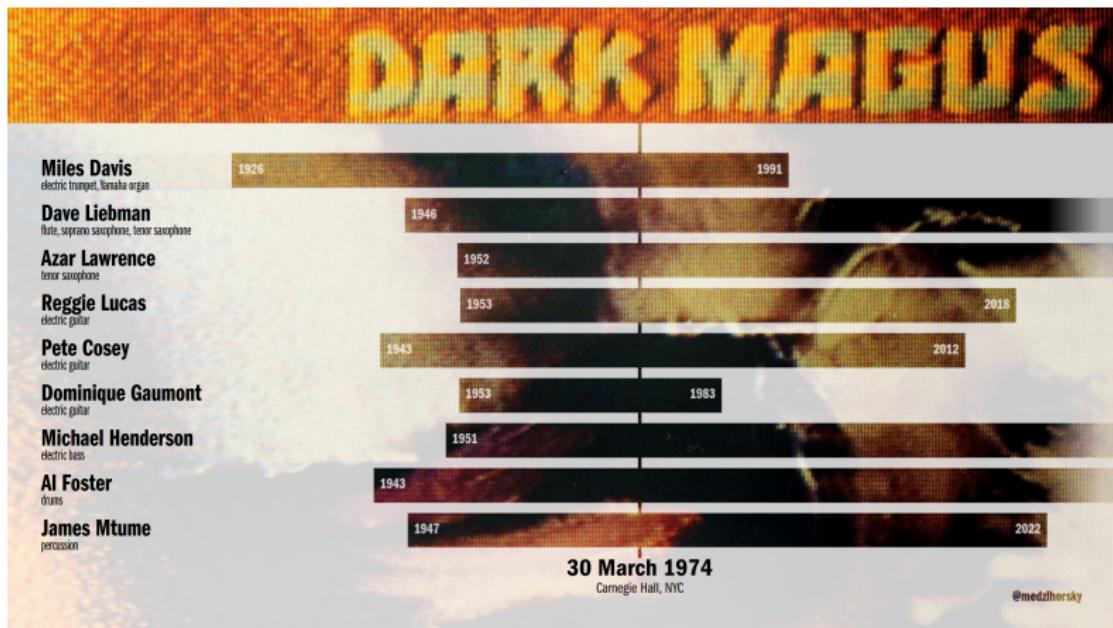


TRANSPARENCY: ALPHA BLENDING



commons.wikimedia.org/wiki/File:Hue_alpha_falloff.svg

RASTERS, TRANSPARENCIES, AND OVERLAYS



FONTS: TYPES

Serif (Minion Pro)

- Old Style (Adobe Jenson Pro)
- Transitional (ITC New Baskerville)
- Modern (Bodoni)

Slab Serif (Clarendon)

Sans serif (Myriad)

Script (Coronet)

Blackletter (Teutonic No. 1)

DISPLAY (LiquidCrystal)

Monospaced (Courier)

❖*■*○▼
(Dingbat) (ITC Zapf Dingbats)

FONTS: WEIGHTS AND WIDTHS

The Museum of Modern Art
The Museum of Modern Art
The Museum of Modern Art
The Museum of Modern Art
The Museum of Modern Art
The Museum of Modern Art
The Museum of Modern Art
The Museum of Modern Art

The Museum of Modern Art
The Museum of Modern Art
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The Museum of Modern Art
The Museum of Modern Art
The Museum of Modern Art

MoMA Sans

commercialtype.com/news/moma_sans_for_the_museum_of_modern_art

FONTS: WEIGHTS AND WIDTHS

The screenshot shows the Google Fonts interface with a search bar containing "fira sans". Below the search bar, there are filter options: "Categories", "Language", "Font properties", and a checkbox for "Show only variable fonts". The results section displays three font families: Fira Sans, Fira Sans Condensed, and Fira Sans Extra Condensed, each with 18 styles and the "Carrois Apostrophe" subfamily. Each font example contains the sentence "Almost before we knew it, we had left the ground." The Fira Sans example uses a standard weight, the Fira Sans Condensed example uses a condensed weight, and the Fira Sans Extra Condensed example uses an extra-condensed weight.

Google Fonts

Fonts Icons Knowledge More

fira sans Sentence Type something 40px

Categories Language Font properties Show only variable fonts

3 of 1358 families

About these results Sort by: Trending

Font Family	Subfamily	Styles
Fira Sans	Carrois Apostrophe	18 styles
Fira Sans Condensed	Carrois Apostrophe	18 styles
Fira Sans Extra Condensed	Carrois Apostrophe	18 styles

Fira Sans
Carrois Apostrophe 18 styles

Almost before we knew it, we had left the ground.

Fira Sans Condensed
Carrois Apostrophe 18 styles

Almost before we knew it, we had left the ground.

Fira Sans Extra Condensed
Carrois Apostrophe 18 styles

Almost before we knew it, we had left the ground.

Fonts for print and fonts for web



Antenna
So once more the little company set off upon the journey, the Lion walking with stately strides at Dorothy's side. Toto did not approve this new comrade at first, for he could not forget how nearly he had been crushed between the Lion's great jaws. But after a time he became more at ease, and presently Toto and the Cowardly Lion had grown to be good friends.

Antenna RE
So once more the little company set off upon the journey, the Lion walking with stately strides at Dorothy's side. Toto did not approve this new comrade at first, for he could not forget how nearly he had been crushed between the Lion's great jaws. But after a time he became more at ease, and presently Toto and the Cowardly Lion had grown to be good friends.



FREE FONTS: fonts.google.com

Google Fonts

Fonts Icons Knowledge More ⚙️ 📁

Search fonts Sentence Type something 40px ⚙️

Categories Language Font properties Show only variable fonts ⓘ

1358 of 1358 families About these results Sort by: Trending

<p>Roboto Christian Robertson</p> <p>12 styles</p> <p>Almost before we knew it, we had left the ground.</p>	<p>Neonderthaw Robert Leuschke</p> <p>1 style</p> <p><i>Almost before we knew it, we had left the ground.</i></p>	<p>Dongle Yanghee Ryu</p> <p>3 styles</p> <p>Almost before we knew it, we had left the ground.</p>
<p>Open Sans Steve Matteson</p> <p>Variable</p> <p>Almost before we knew it, we had left the ground.</p>	<p>Rubik Beastly NaN, Luke Prowse</p> <p>1 style</p> <p>Almost before we knew it, we had left the ground.</p>	<p>Noto Sans Japanese Google</p> <p>6 styles</p> <p>人類社会のすべての構成員の固有の尊厳と平等で譲ることのできない権利とを承認することは</p>

FREE FONTS: THE L^AT_EX FONT CATALOGUE

The L^AT_EX Font Catalogue

[FRONT PAGE] [SERIF FONTS] [SERIF FONTS, SUB-CATEGORISED] [SANS SERIF FONTS] [TYPEWRITER FONTS] [CALLIGRAPHICAL AND HANDWRITTEN FONTS] [UNCIAL FONTS]
[BLACKLETTER FONTS] [OTHER FONTS] [FONTS WITH MATH SUPPORT] [FONTS WITH OTF/OPENTYPE OR TRUETYPE SUPPORT] [ALL FONTS, BY CATEGORY] [ALL FONTS, ALPHABETICALLY]
[ABOUT THE L^AT_EX FONT CATALOGUE] [PACKAGES THAT PROVIDE MATH SUPPORT]

Blackletter Fonts

Click on the individual fonts to see further examples and instructions for use with L^AT_EX.

OT Beckman [OTF or TTF only]

The quick brown fox jumps over the sleazy dog

OT Cloistered Monk [OTF or TTF only]

The quick brown fox jumps over the sleazy dog

Early Gothic

The quick brown Fox jumps over the sleazy dog

Fraktur

The quick brown fox jumps over the sleazy dog

OT Fraktur [OTF or TTF only]

The quick brown fox jumps over the sleazy dog

Gothic Textura Prescius

The quick brown fox jumps over the sleazy dog

Gothic Textura Quadrata

The quick brown fox jumps over the sleazy dog

Gotik

The quick brown for jumps oder the sleazy dog

OT Heidelberg Type [OTF or TTF only]

The quick brown fox jumps over the sleazy dog

Hershey Old English Font

The quick brown fox jumps over the sleazy dog

OT Linoscroll [OTF or TTF only]

The quick brown fox jumps over the sleazy dog

OT London Scroll [OTF or TTF only]

The quick brown fox jumps over the sleazy dog

Missaali [OTF or TTF only]

The quick brown fox jumps over the sleazy dog

Schwabacher

The quick brown for jumps over the sleazy dog

FINDING FONTS: VISUAL IDENTITY GUIDELINES



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Brand					
You are in: Durham University => Brand					

Brand

Logos

Colour Palette

Fonts

Tone of Voice

Photography and Video

Graphics

Marketing Toolkit

Creative Brief

Communications, Design and Print Framework

External Advertising and Media Buying

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Brand



Welcome to your brand identity guidelines, a set of visual and verbal principles to help you express the University brand consistently and confidently.

Logos

Colour Palette

Fonts

Tone of Voice

Photography and Video

Graphics

Marketing Toolkit

Creative Brief

Communications, Design and Print Framework

External Advertising and Media Buying

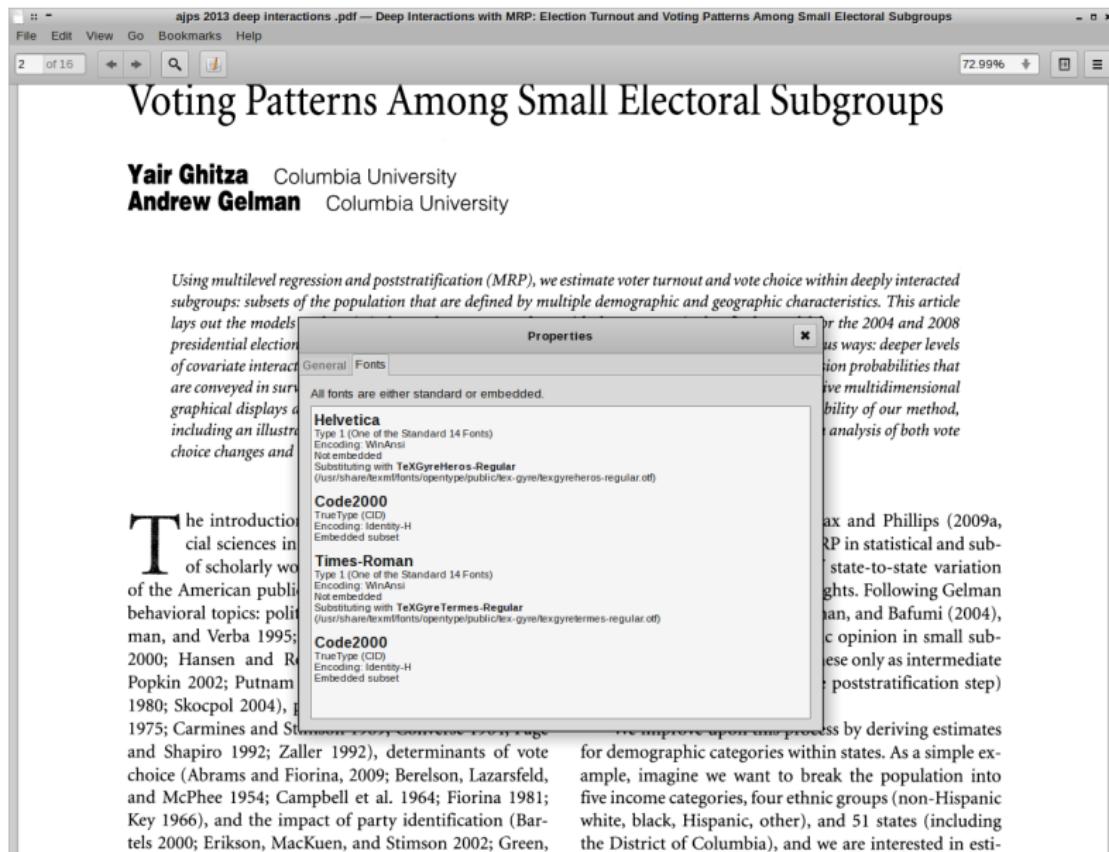
If you have any questions about how to use any of the materials in the new Brand Identity Guidelines, please contact brand@durham.ac.uk



FINDING FONTS: JOURNAL ARTICLES

ajs 2013 deep interactions .pdf — Deep Interactions with MRP: Election Turnout and Voting Patterns Among Small Electoral Subgroups

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2 of 16 72.99% 

Voting Patterns Among Small Electoral Subgroups

Yair Ghitza Columbia University
Andrew Gelman Columbia University

Using multilevel regression and poststratification (MRP), we estimate voter turnout and vote choice within deeply interacted subgroups: subsets of the population that are defined by multiple demographic and geographic characteristics. This article lays out the models for the 2004 and 2008 presidential election. The results show how covariate interactions and covariate interactions of covariate interactions are conveyed in survey graphical displays and maps, including an illustration of how turnout and vote choice changes and interact.

Helvetica
Type 1 (One of the Standard 14 Fonts)
Encoding: WinAnsi
Not embedded
Substituting with **TeXGyreHeros-Regular**
(/usr/share/texmf-fonts/open-type/public/c/tx-gyre/txgyreheros-regular.otf)

Code2000
TrueType (CID)
Encoding: Identity-H
Embedded subset

Times-Roman
Type 1 (One of the Standard 14 Fonts)
Encoding: WinAnsi
Not embedded
Substituting with **TeXGyreTermes-Regular**
(/usr/share/texmf-fonts/open-type/public/c/tx-gyre/txgyretermes-regular.otf)

Code2000
TrueType (CID)
Encoding: Identity-H
Embedded subset

ax and Phillips (2009a, 2009b) in statistical and substate-to-state variation. Following Gelman, Hill, and Bafumi (2004), we can think of opinion in small subgroups only as intermediate in the poststratification step)

process by deriving estimates for demographic categories within states. As a simple example, imagine we want to break the population into five income categories, four ethnic groups (non-Hispanic white, black, Hispanic, other), and 51 states (including the District of Columbia), and we are interested in esti-



Fonts by Appearance

Fonts by Name

Fonts by Similarity

Fonts by Picture

Fonts by Designer/Publisher

Differences

Compare: and

Tweet Differences

Lato

ABCDEFGHIJKLMNOPQRSTUVWXYZÀ^ÀÁÉÍÅéíôabcdefghijklmnopqrstuvwxyzàáéíô&1234567890(\$£€.,!?)

Birka

ABCDEFGHIJKLMNOPQRSTUVWXYZÀ^ÀÁÉÍÅéíôabcdefghijklmnopqrstuvwxyzàáéíô&1234567890(\$£€.,!?)



The upper-case 'J' sits on the baseline.



The characters do not have serifs.



The diagonal strokes of the upper-case 'K' connect to the vertical via a horizontal bar.



The centre vertex of the upper-case 'M' is above the baseline.



The lower-case 'e' has a straight horizontal bar.



The tail of the upper-case 'Q' is straight (horizontal, diagonal, or vertical).



The upper-case 'J' descends below the baseline.



The characters have serifs.



The diagonal strokes of the upper-case 'K' meet in a 'T'.



The centre vertex of the upper-case 'M' is on the baseline.



The lower-case 'e' has a straight angled bar.



The tail of the upper-case 'Q' is curved, S-shaped, or Z-shaped.

Note that the fonts in the icons shown above represent general examples, not necessarily the two fonts chosen for comparison.

Show Examples

FONTS IN USE

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Collection

Blog

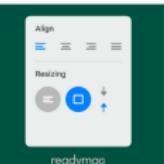
Search a word, typeface, tag...
or combine terms with Advanced Search

Topics ▾

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Typefaces ▾

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ITC Grouch

Agincourt

DAUBENTON

Sirisfre

Druk Wide

Prestige

Avebury

Droulers

Funkfont

Akzidenz-Grotesk

Avenir

Deutsche Anzeigenschrift

Crimson

Alte Haas Grot.



California

SCHMALFETTE GROTESK

Noah

マティス

Whyte Inktrap

Italian Black

Franklin Gothic

Adobe Caslon

Helvetica

Suisse Int'l

Caslon Graphique

Dynamo

Pitch

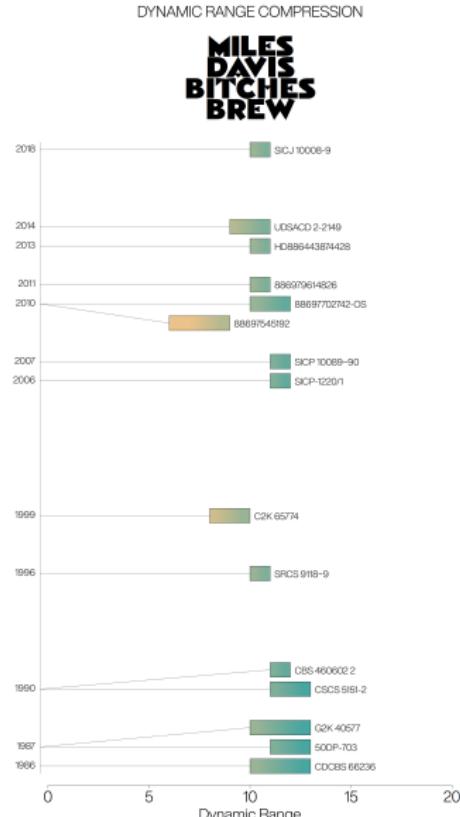
Neue Helvetica

JHA Times Now

GALYPSO

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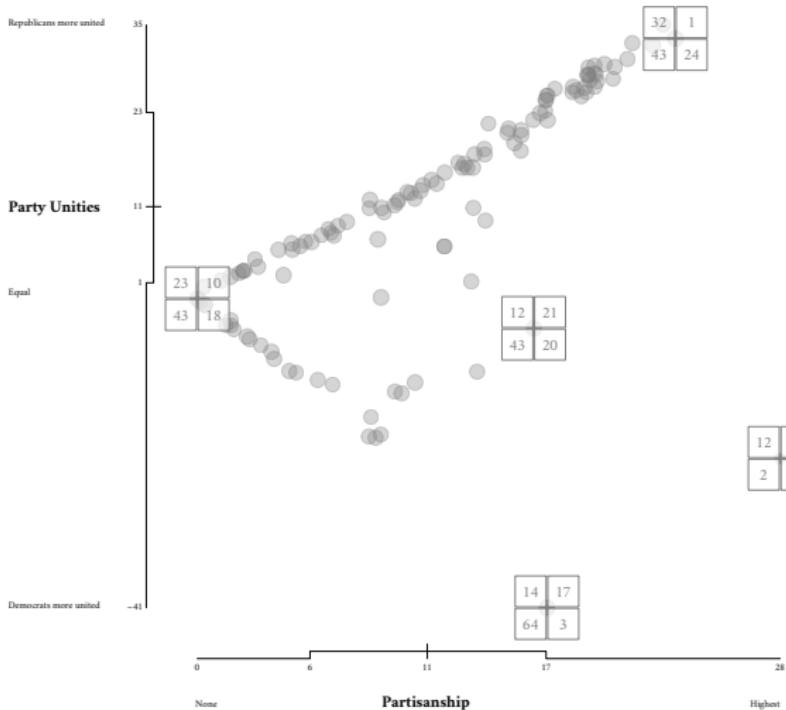
FONT COMBINATIONS: OTHER SOURCES



Thank you!

Appendix

SCATTERPLOT



The journey of the Civil Rights Act of 1964 in the U.S. Senate is one of the best-known stories of legislative politics. In total, 120 roll calls took place from February 26 to June 19. In this dataset, a sizeable minority of Democratic senators tried to stop the Act, which had the support of President Lyndon B. Johnson, a Democrat, as well as of most senators of both parties. Each party split on some of the roll calls, sometimes simultaneously. The figure shows the differences in partisanship on the vertical, and the partisanship on the horizontal. Partisanship is measured conventionally, as the fraction of legislators who vote against the modal choice of their party colleagues. Partisanship is measured with a new index, the smallest possible fraction of partisan votes. For illustration, the table of choices by party

	Rep.	Non
Rep.	10	20
Dem.	30	40

can be decomposed into non-partisan and partisan votes

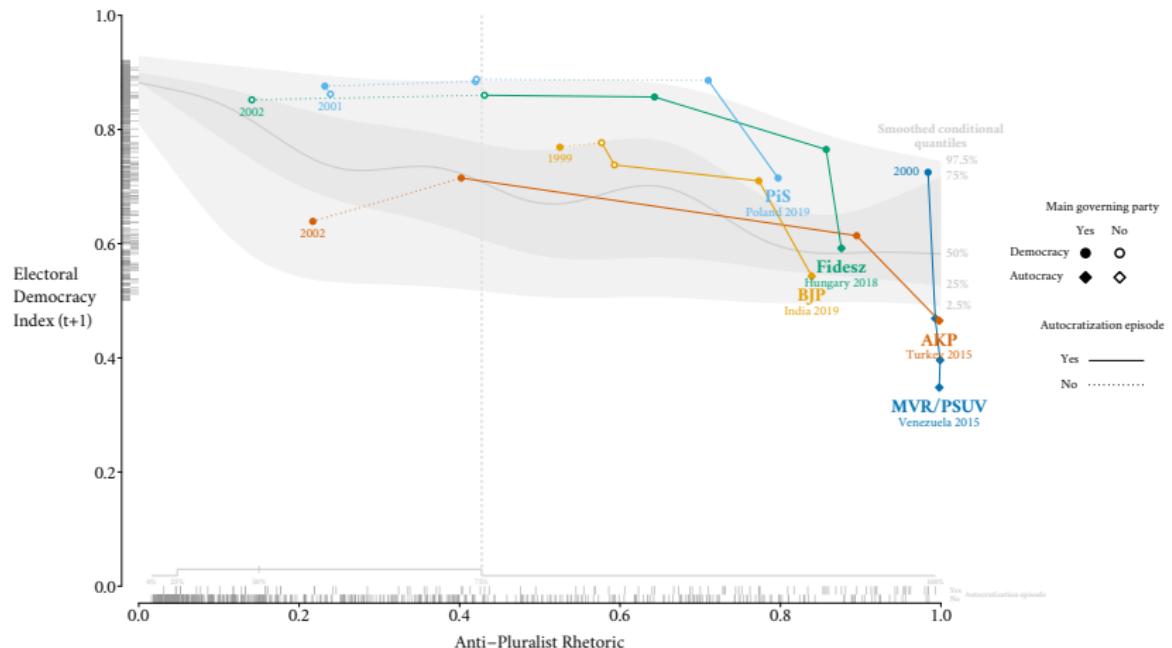
10	13
30	40

and

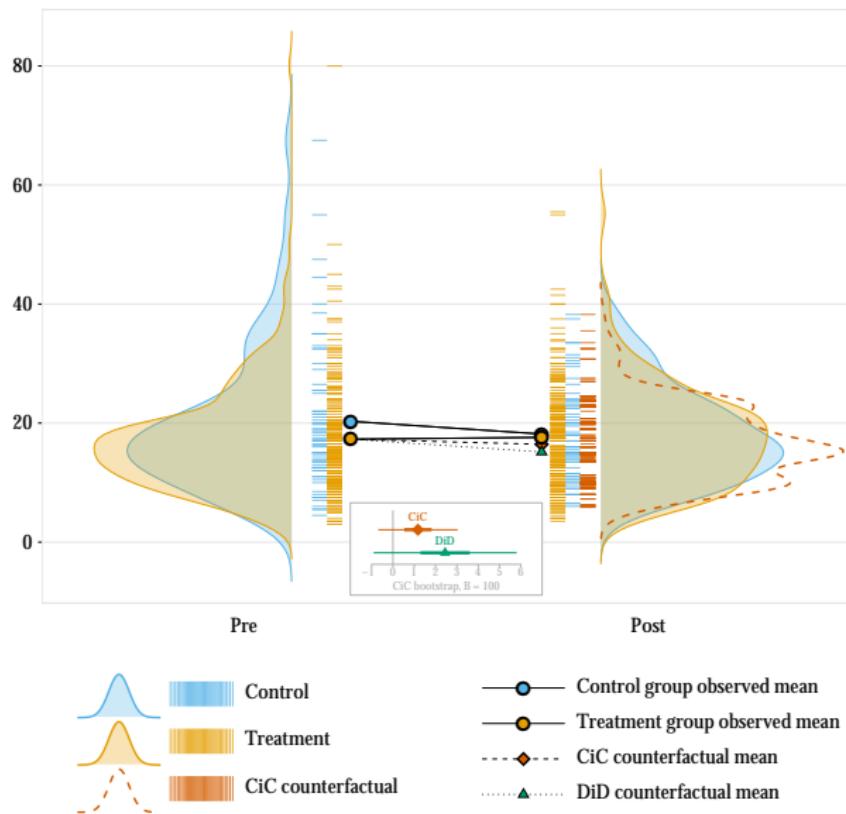
7	?
20	20

and consequently its value of the index is $7/100$ or 7% . Five roll calls reported in detail show various combinations of unities and partisanship. The index, which is a special case of the Radwin-Clogg-Lindsay mixture index of fit, and the legislative journey of the Act are discussed in the author's dissertation.

TIME SERIES



TIME SERIES

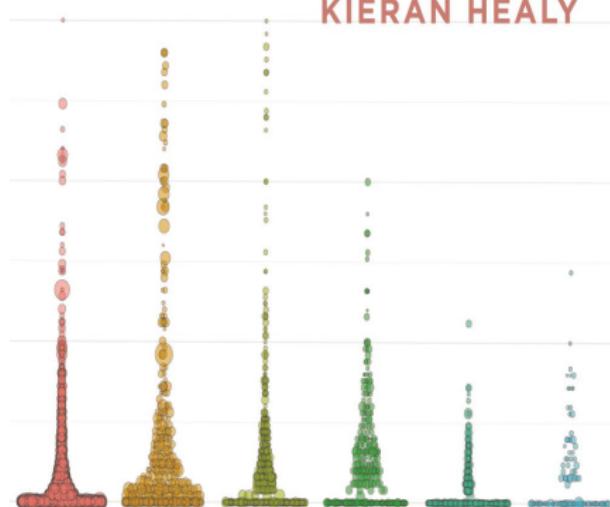


THE HANDS-ON THING, IN tidyverse

DATA VISUALIZATION

A PRACTICAL INTRODUCTION

KIERAN HEALY



Appendix End