


Data.Europa Academy • Visualising data for impact

Designing With Integrity

Alberto Cairo

OpenVisualizationAcademy.com



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Training series 'Visualising data with impact': foundations of effective data visualisation

14 October 2025

Online

Episode ONE - October 14

<https://data.europa.eu/en/news-events/events/training-data-visualisation-session-1-foundations-effective-data-visualisation>



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Training series "Visualising data with impact..."

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Training series 'Visualising data with impact': designing with integrity


15 October 2025

Online

Episode TWO - October 15

Today's webinar

<https://data.europa.eu/en/news-events/events/data-visualisation-training-session-2-designing-integrity>



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Training series 'Visualising data with impact': data storytelling and creating your narrative

16 October 2025

Online

Episode THREE - October 16

<https://data.europa.eu/en/news-events/events/data-visualisation-training-session-3-data-storytelling-and-creating-your>

EPISODE ONE: Foundations of effective data visualization

Defining information design and data visualization

Exploration, exposition, explanation, expression in visualization

Why do we visualize? The basics

The grammar of graphics

“Rules” versus decision-making

EPISODE TWO: Designing with integrity

Myths of visualization: From “A picture is worth a thousand words” to “the data should speak for itself”

The role of mental models

Why and when do charts “lie”, and what to do about it?

A structured way for thinking about visualization and minimizing misunderstanding

EPISODE THREE: Data storytelling and creating your narrative

Structuring a layout

Building a narrative

Considering visual design

Creative visualization

What comes next in visualization?

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EPISODE THREE: Data storytelling and creating your narrative

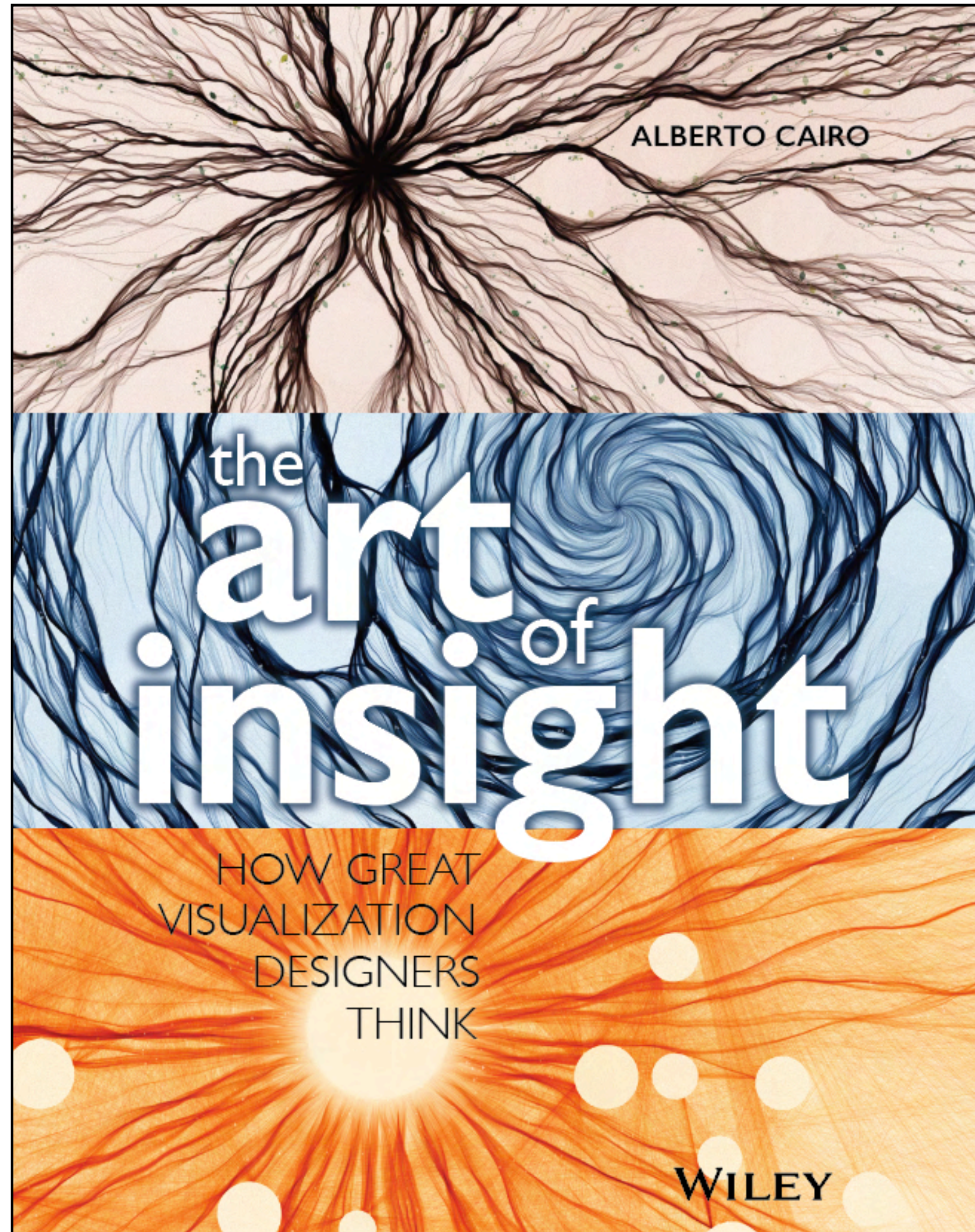
Structuring a layout

Building a narrative

Considering visual design

Creative visualization

What comes next in visualization?



Visualization design consists of **reasoning** about possible **choices** by considering the interplay between:

1. **Content:** The nature, origin, and limitations of the data.
2. **People:** Your audience.
3. **Intent:** The purpose(s) that we define.
4. **Constraints:** The limitations that we may face.
5. **Outcomes:** How the graphic is received.

Every design choice must be **deliberate**.

It is inevitably **subjective**, but it should never be **arbitrary**.

— Myths about data visualization —

“The data should speak for itself!”

“A picture is worth a thousand words”

“Show, don’t tell!”

...



11:00 PM

Hurricane Lee

15.4°N, 47.7°W

Max Winds: **80 mph**

Moving: **WNW at 14 mph**

Pressure: **989 mb**

All these considerations
are interrelated



Opinion

Those Hurricane Maps Don't Mean What You Think They Mean

We use hurricane forecasts to warn people. Why do we misinterpret them so often?

By Alberto Cairo
With Tala Schlossberg

<https://www.nytimes.com/interactive/2019/08/29/opinion/hurricane-dorian-forecast-map.html>

A designer might want to communicate something...



A designer might want to communicate something...

...but readers may interpret something different.

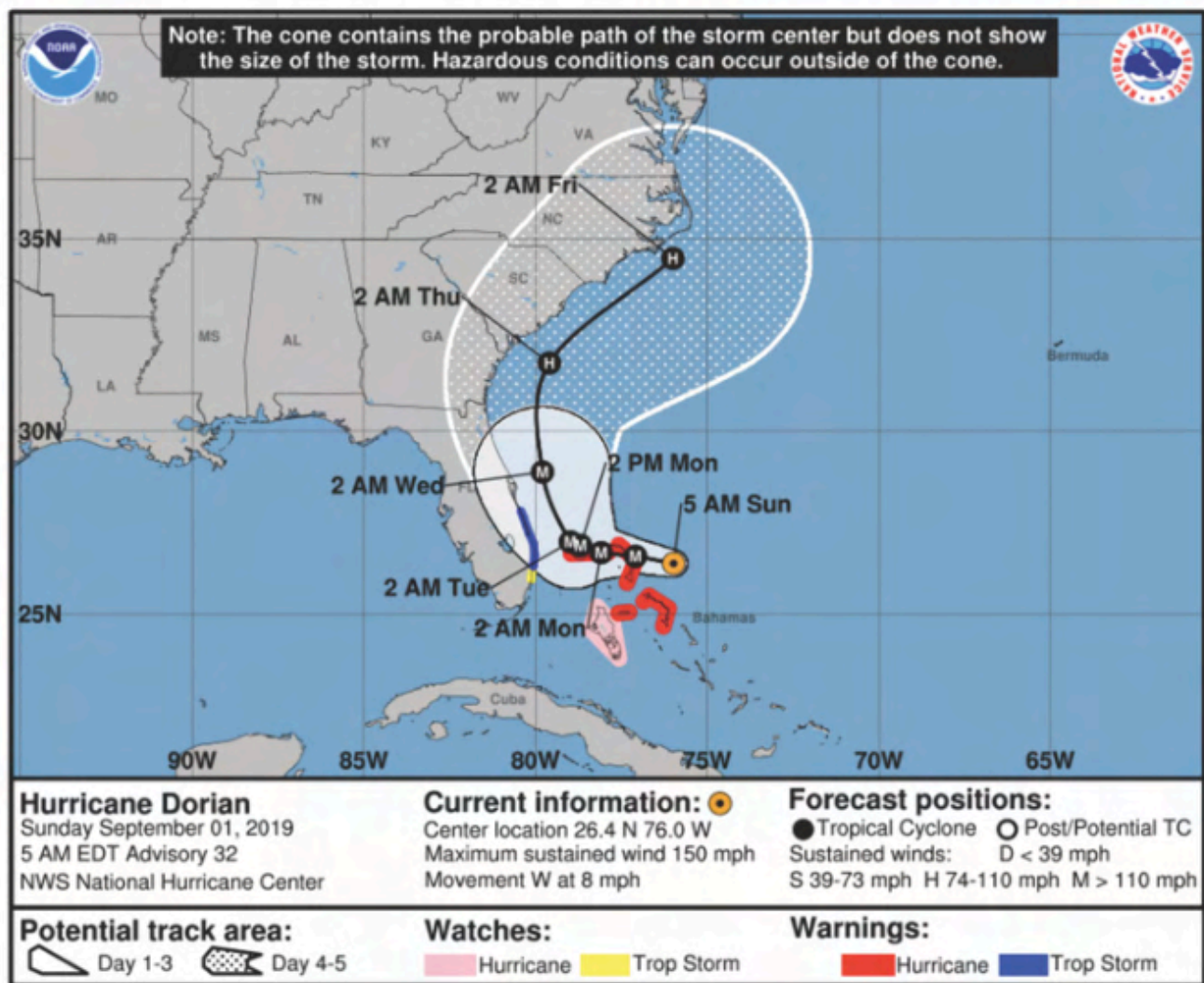


Traditional, unidirectional model of how graphical communication works

Rules! Principles
Best practices!



DESIGNER



Visualization designed
according to what the designer
thinks will work best

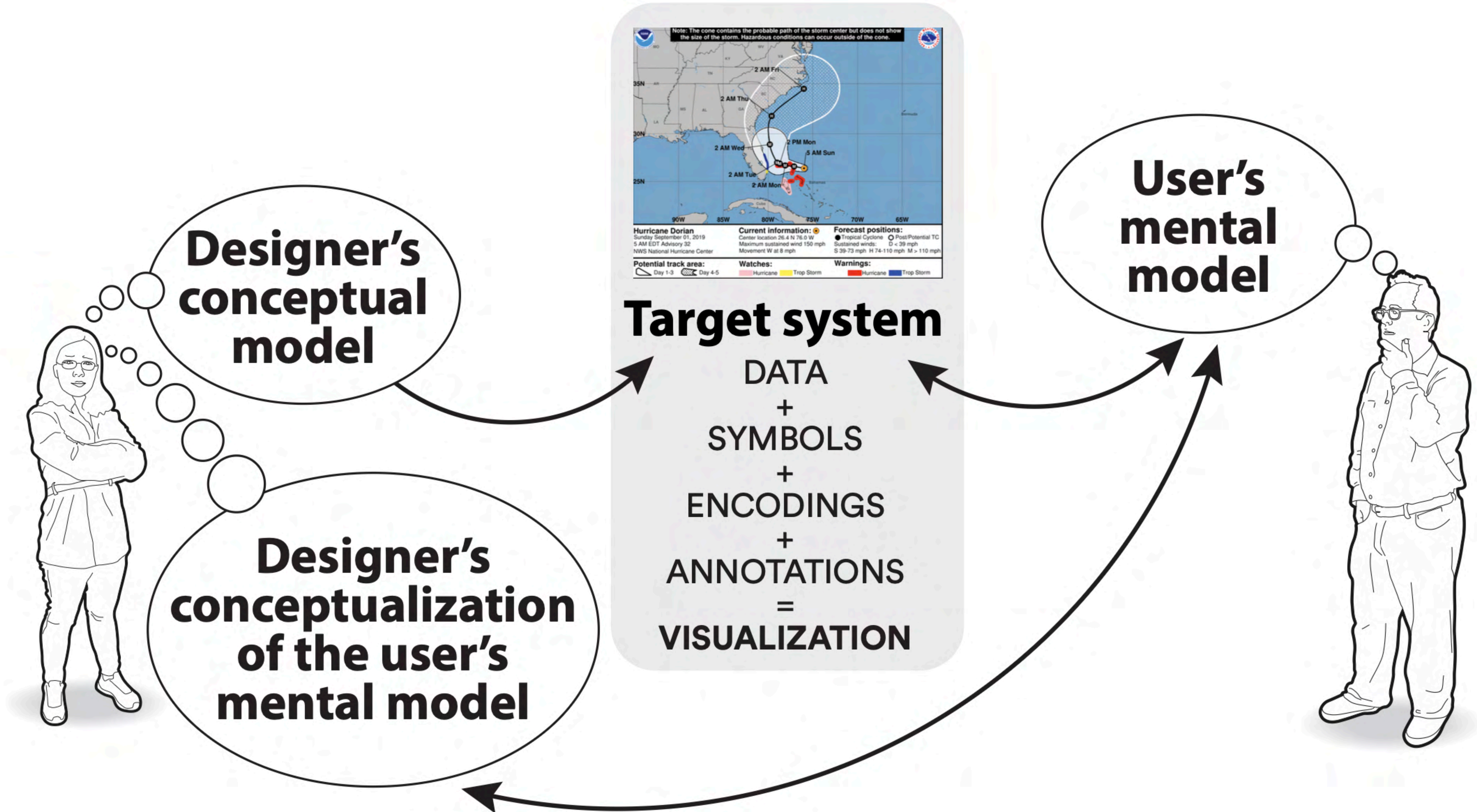
**This model is
too simplistic**

Understanding
magically happens!

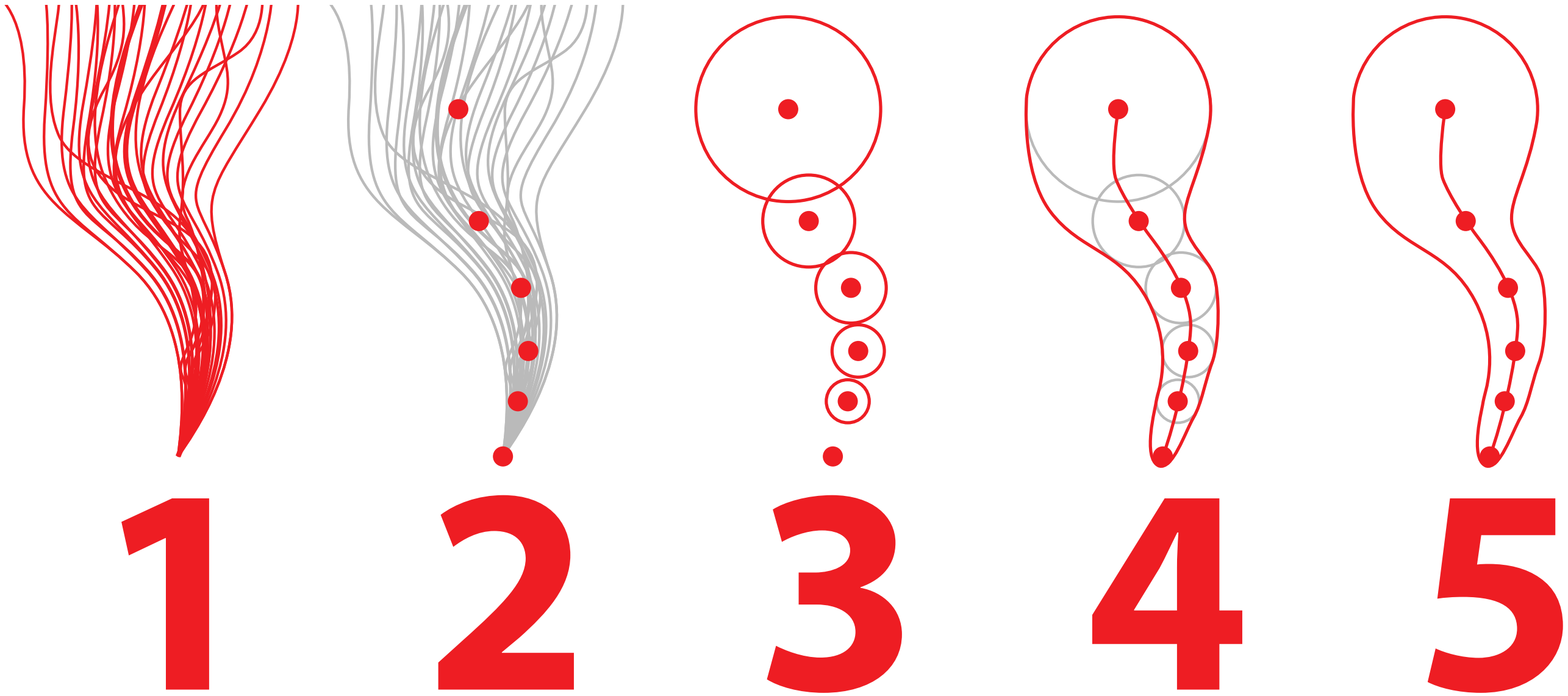


READER

THE PSYCHOLOGY OF CHART COMPREHENSION, SIMPLIFIED

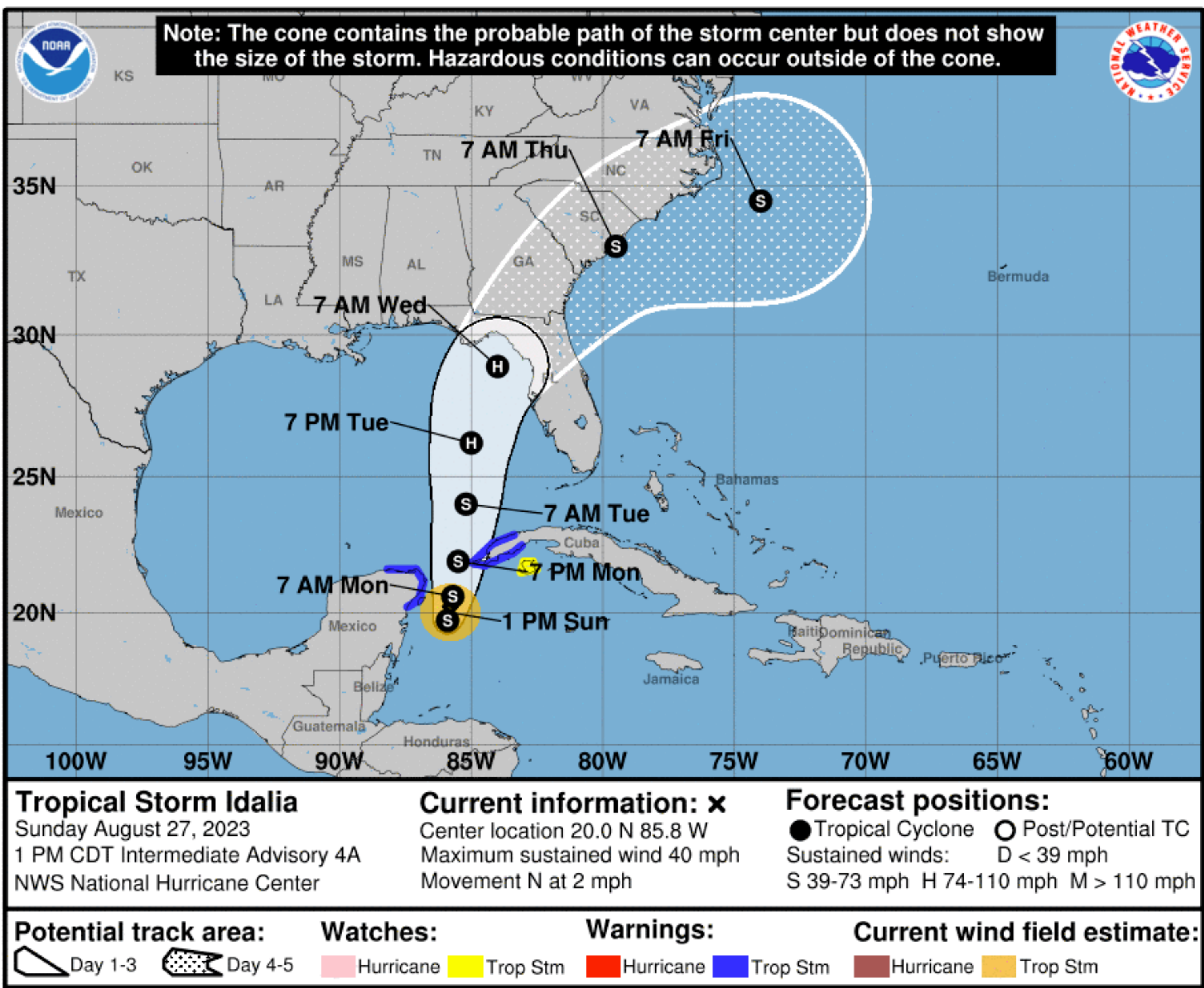


How to read the NHC cone of uncertainty



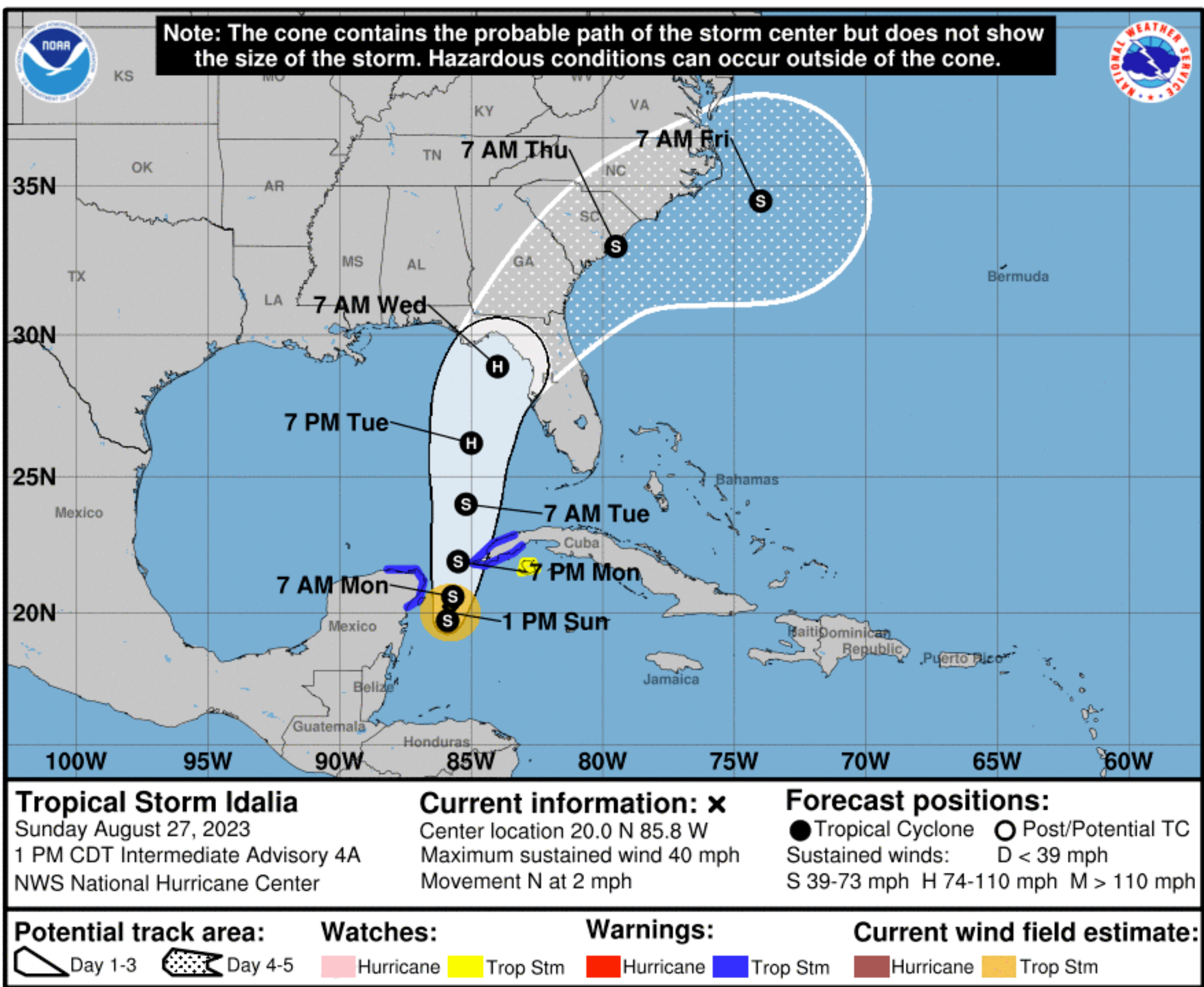
What do readers *really* need to know?

The possible path?

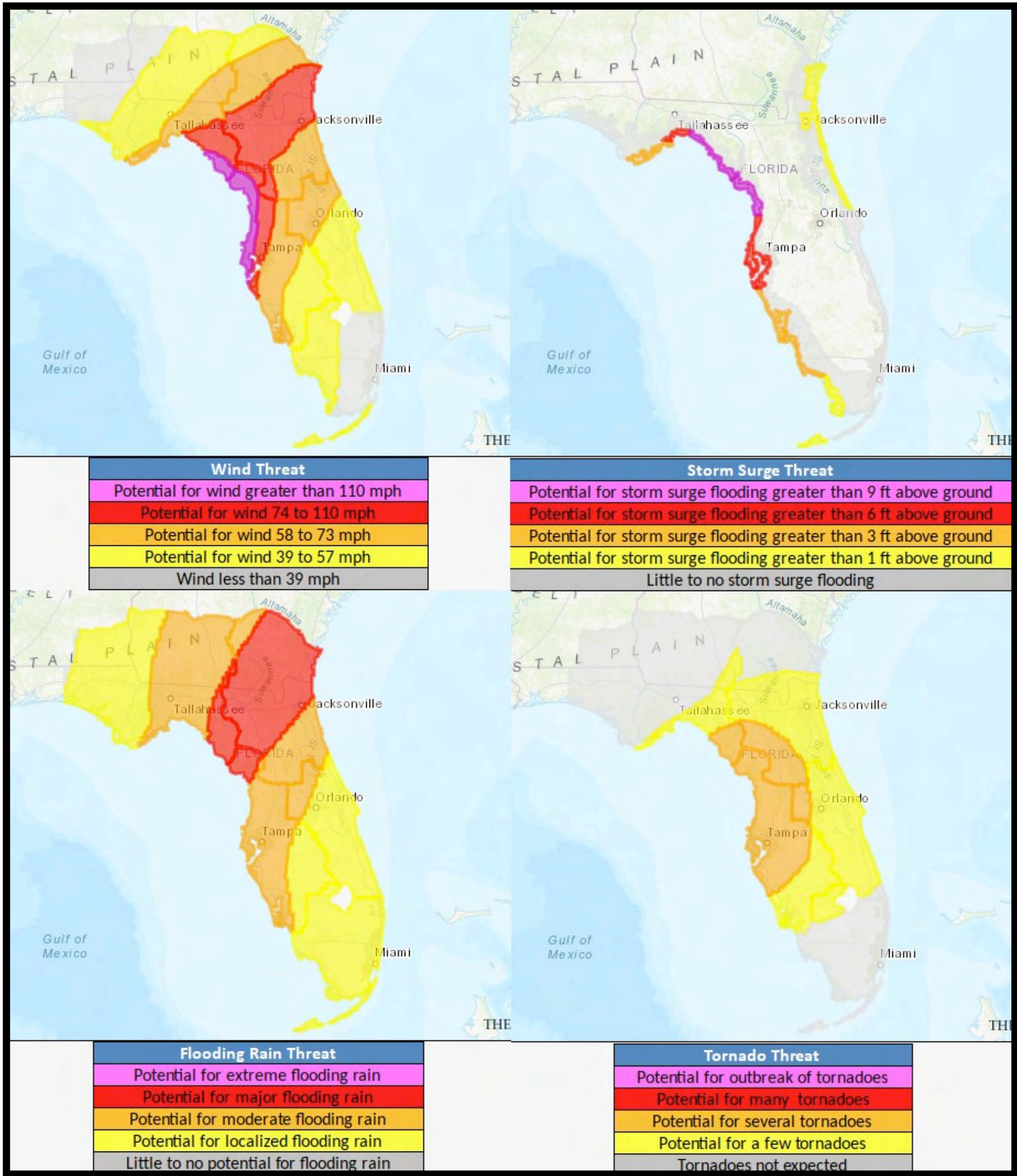


What do readers *really* need to know?

The possible path?



Or a hurricane's possible impacts (HTI)?



—— Charts can mislead even if they are well designed ——

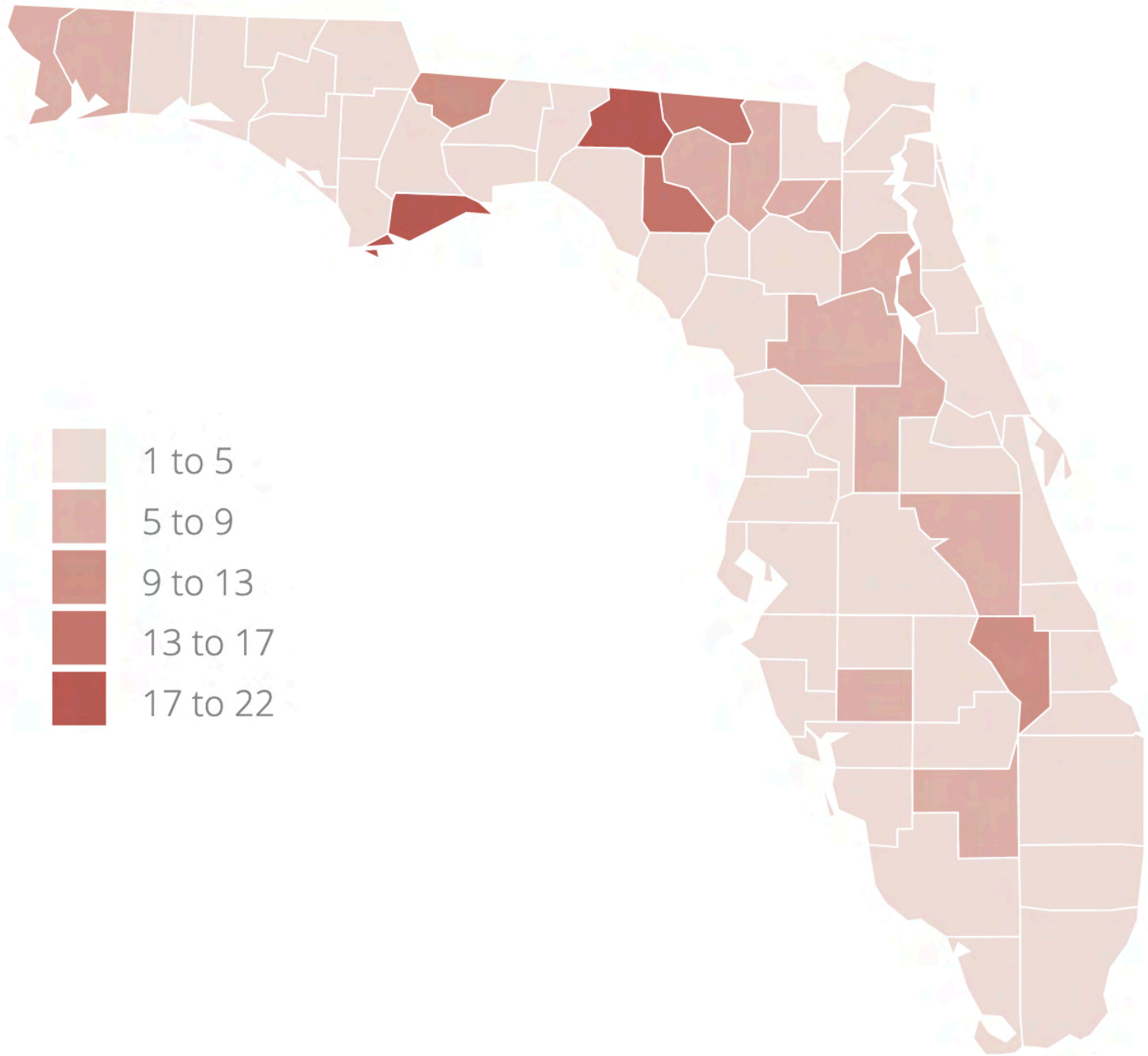


Luís Melgar

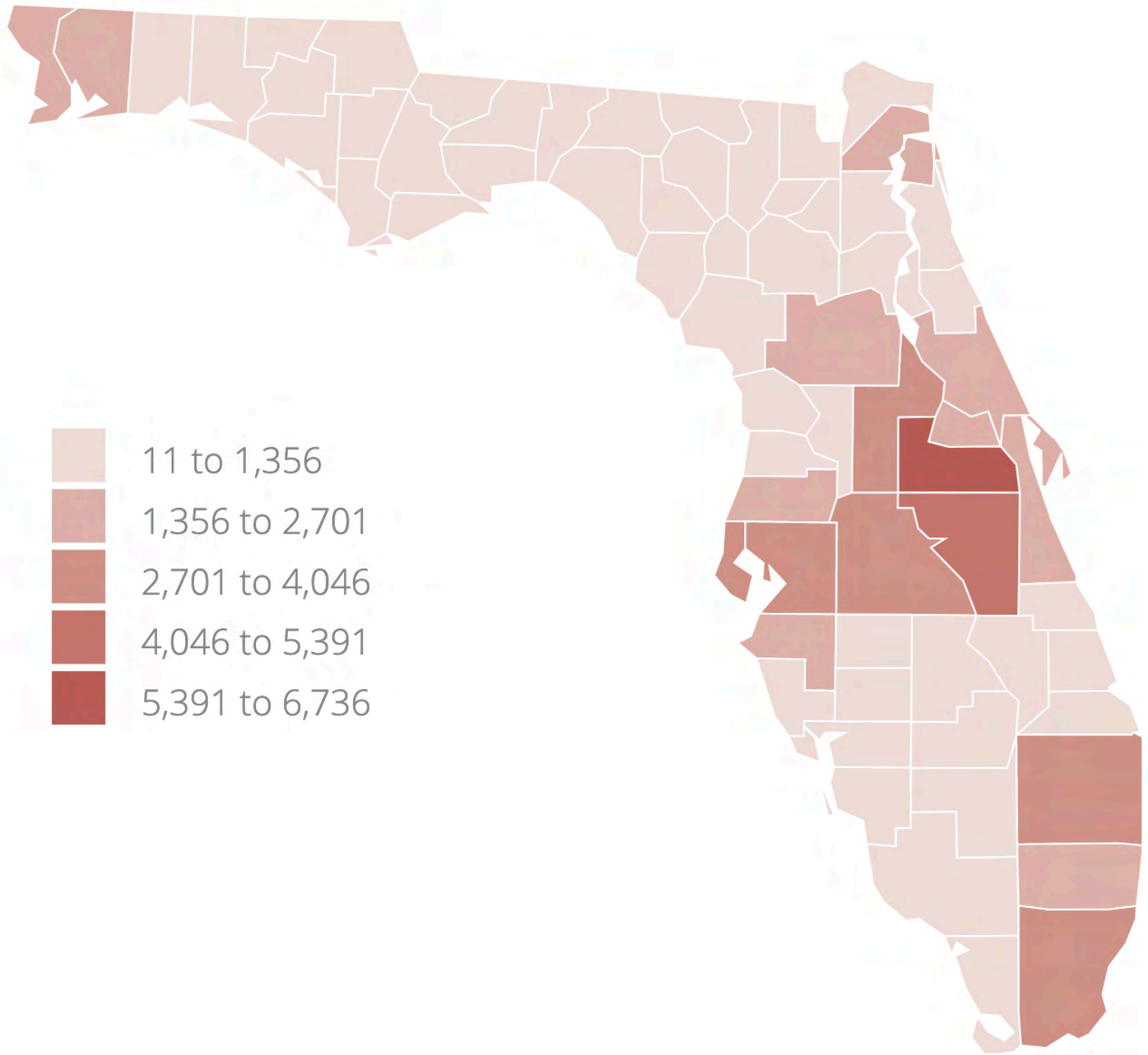
AT SCHOOL WITHOUT A ROOF

In Florida more than 71,000 students are homeless. During the last decade, this population rocketed as a result of the recession and how hard it has become for the poorest families to find affordable housing.

Percentage Total



Percentage Total



<http://www.lmelgar.me/without-a-roof/>

"A must-read for anyone who wants to stay informed."
—CATHY O'NEIL, best-selling author of *Weapons of Math Destruction*

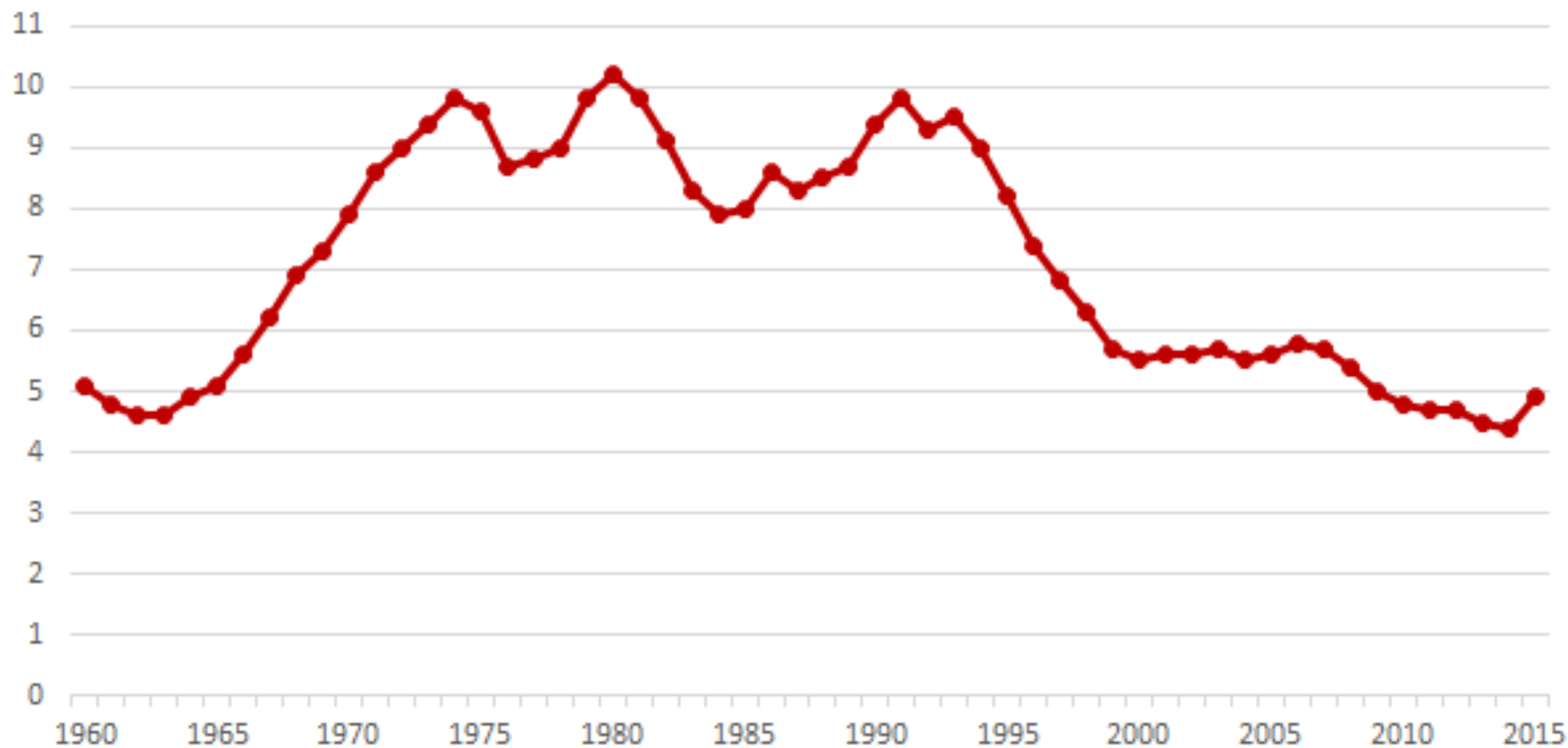
How Charts Lie



Getting Smarter about
Visual Information

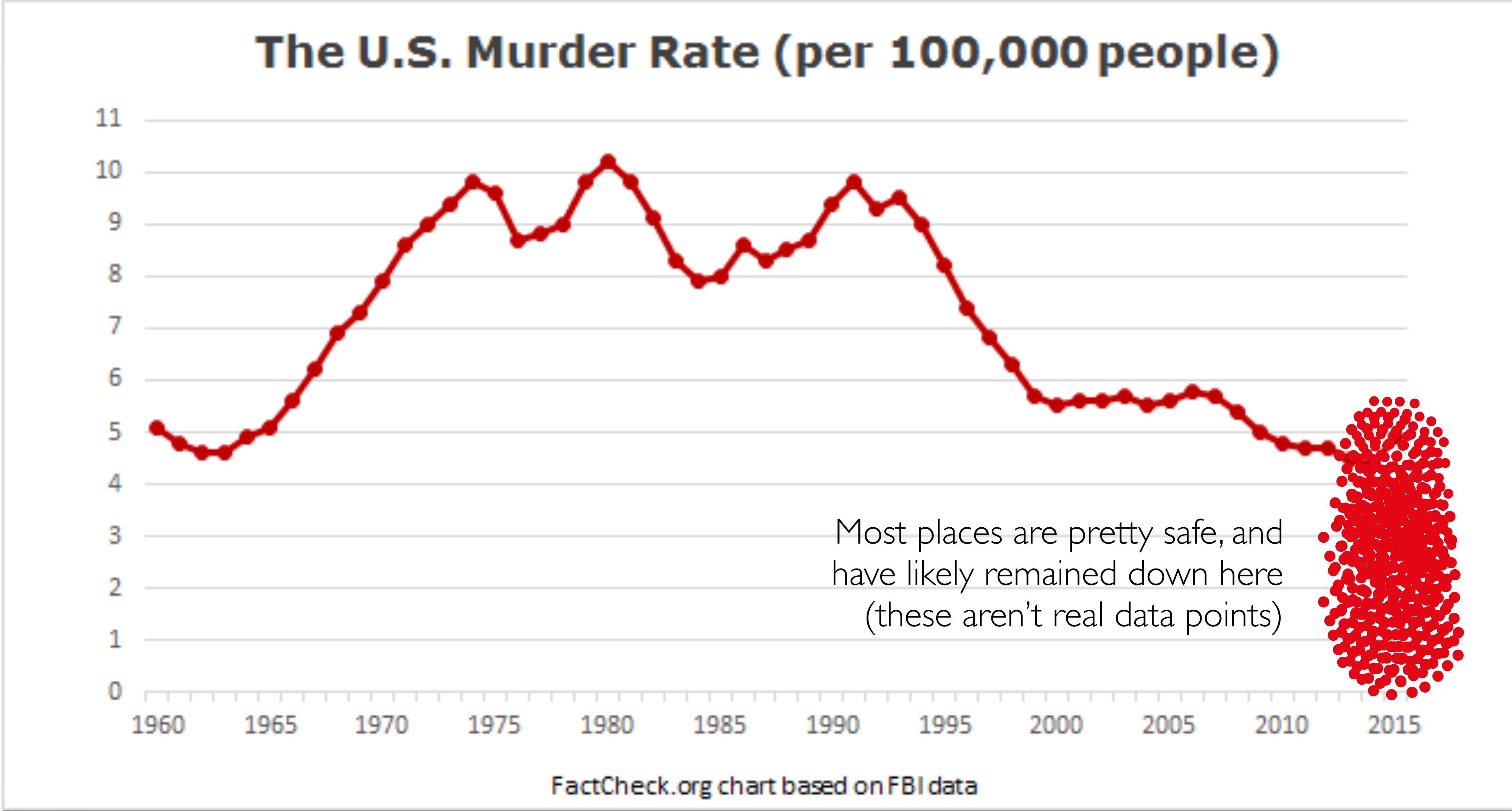
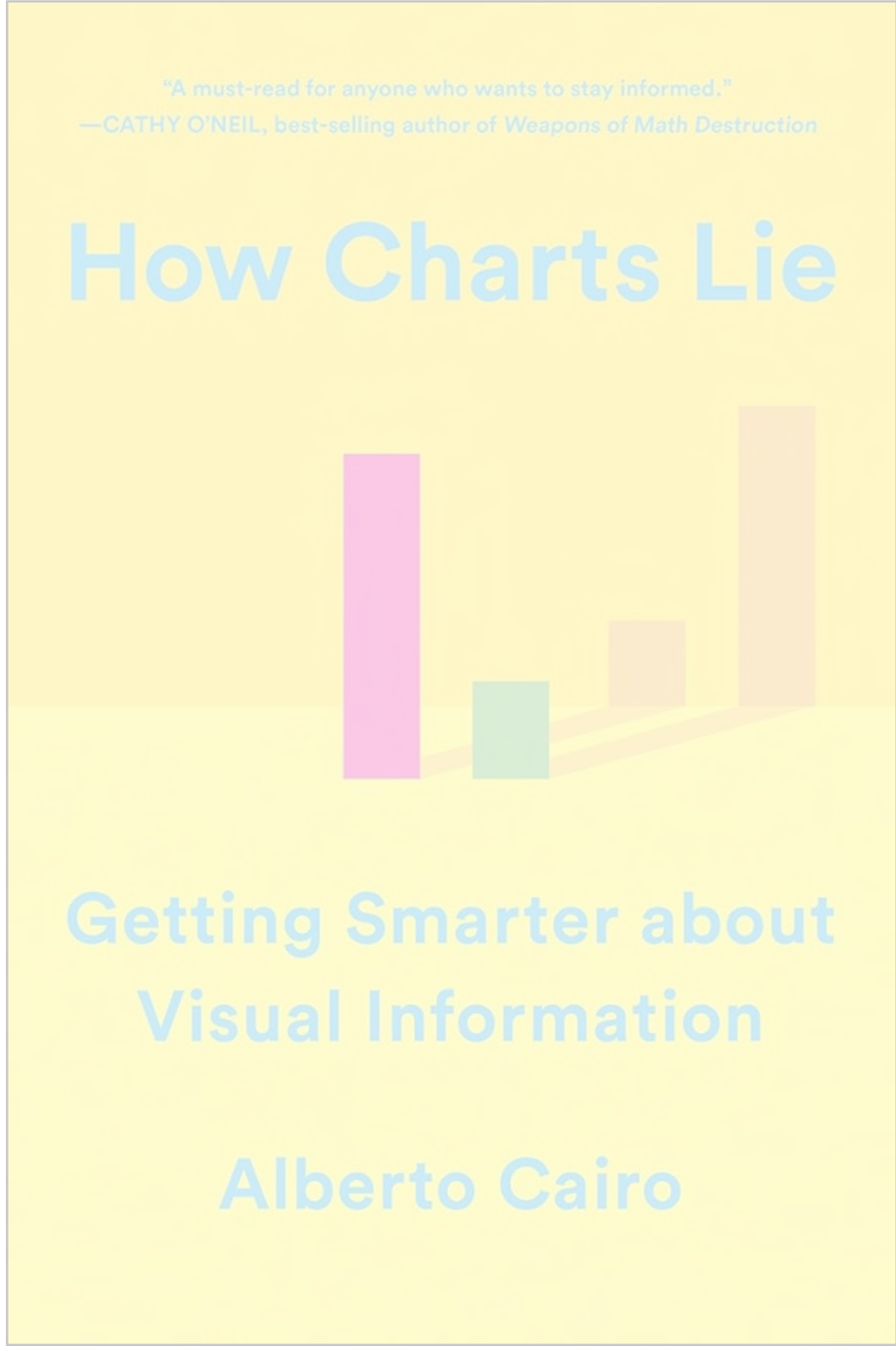
Alberto Cairo

The U.S. Murder Rate (per 100,000 people)

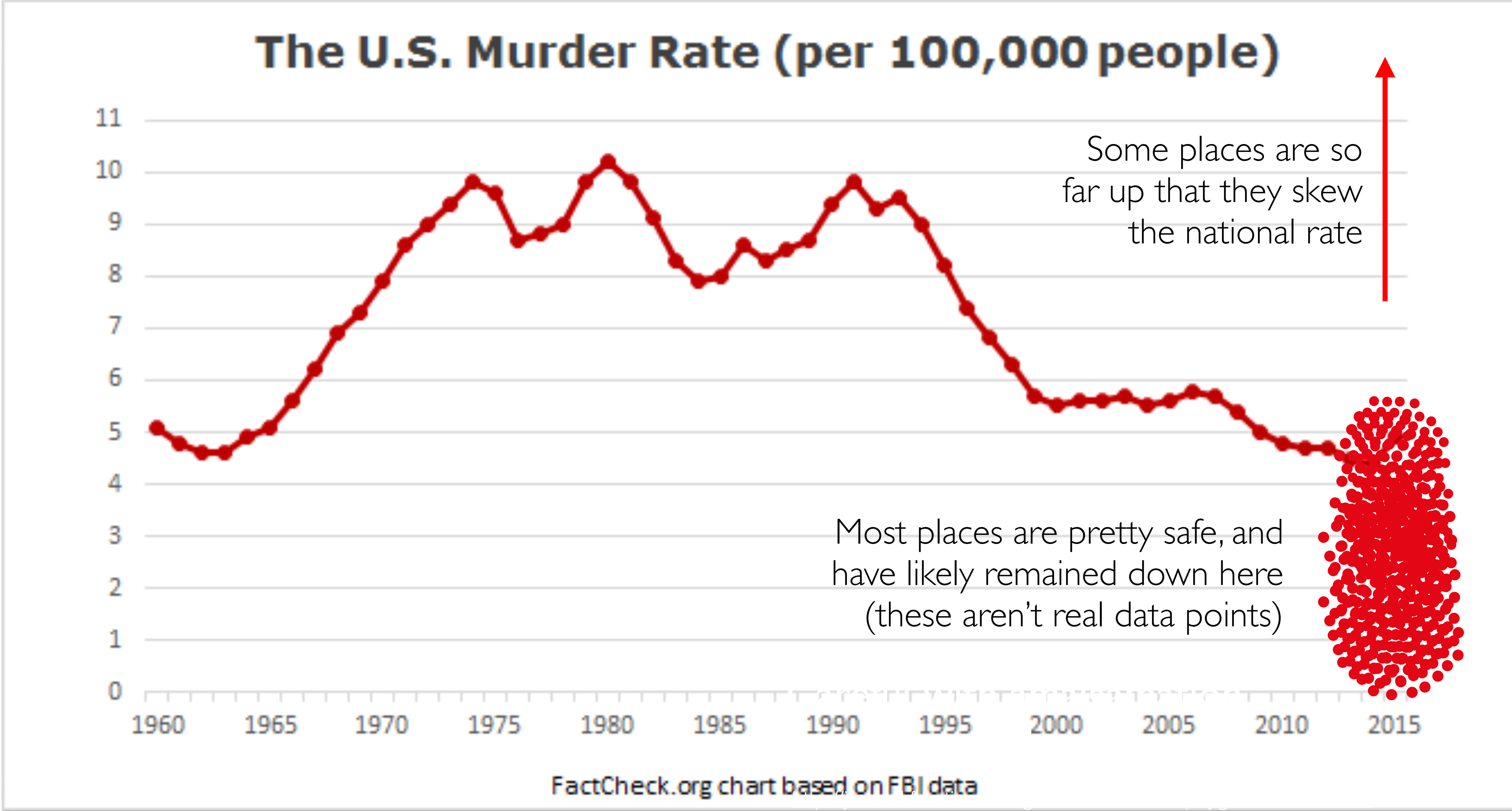
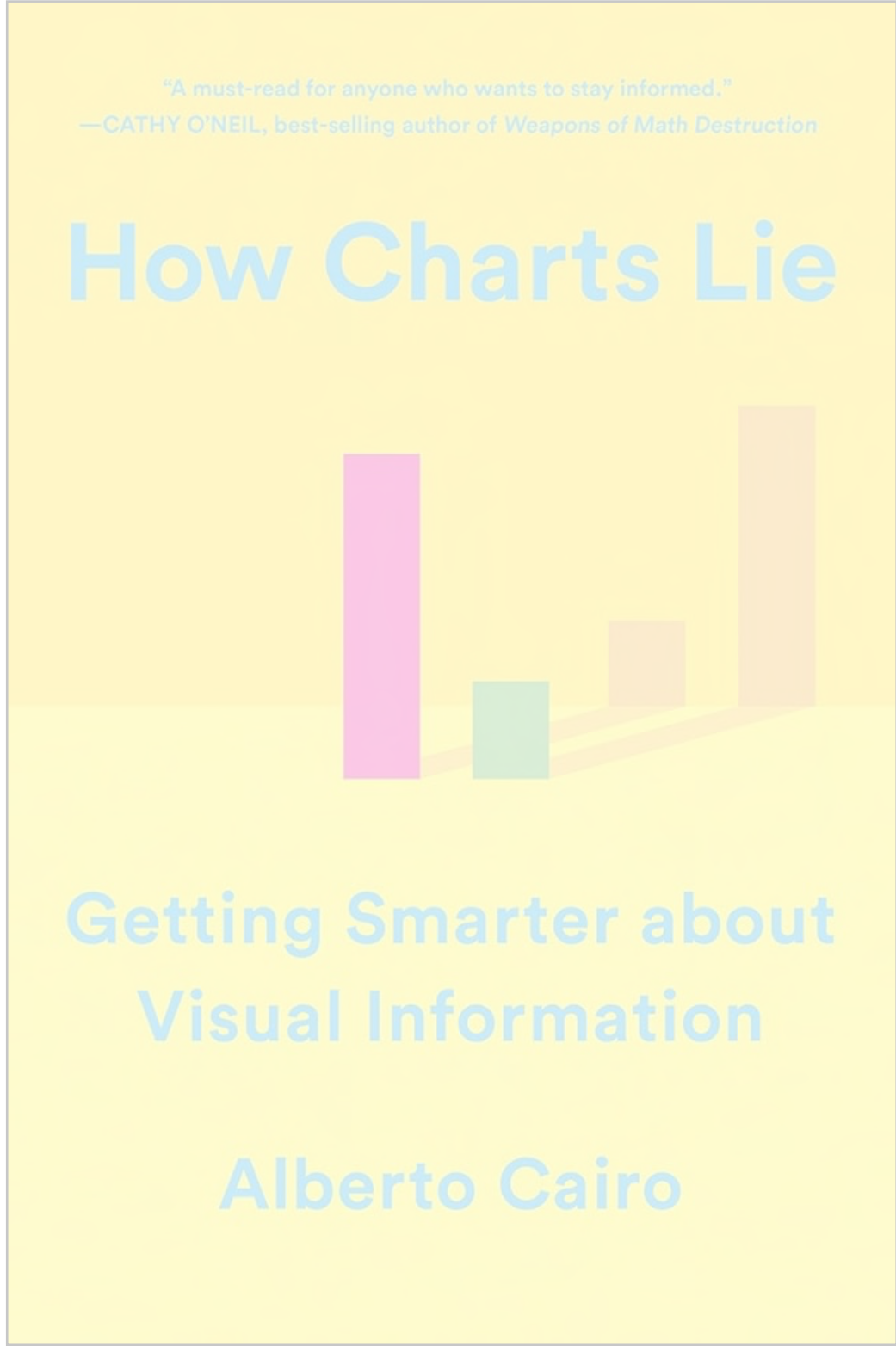


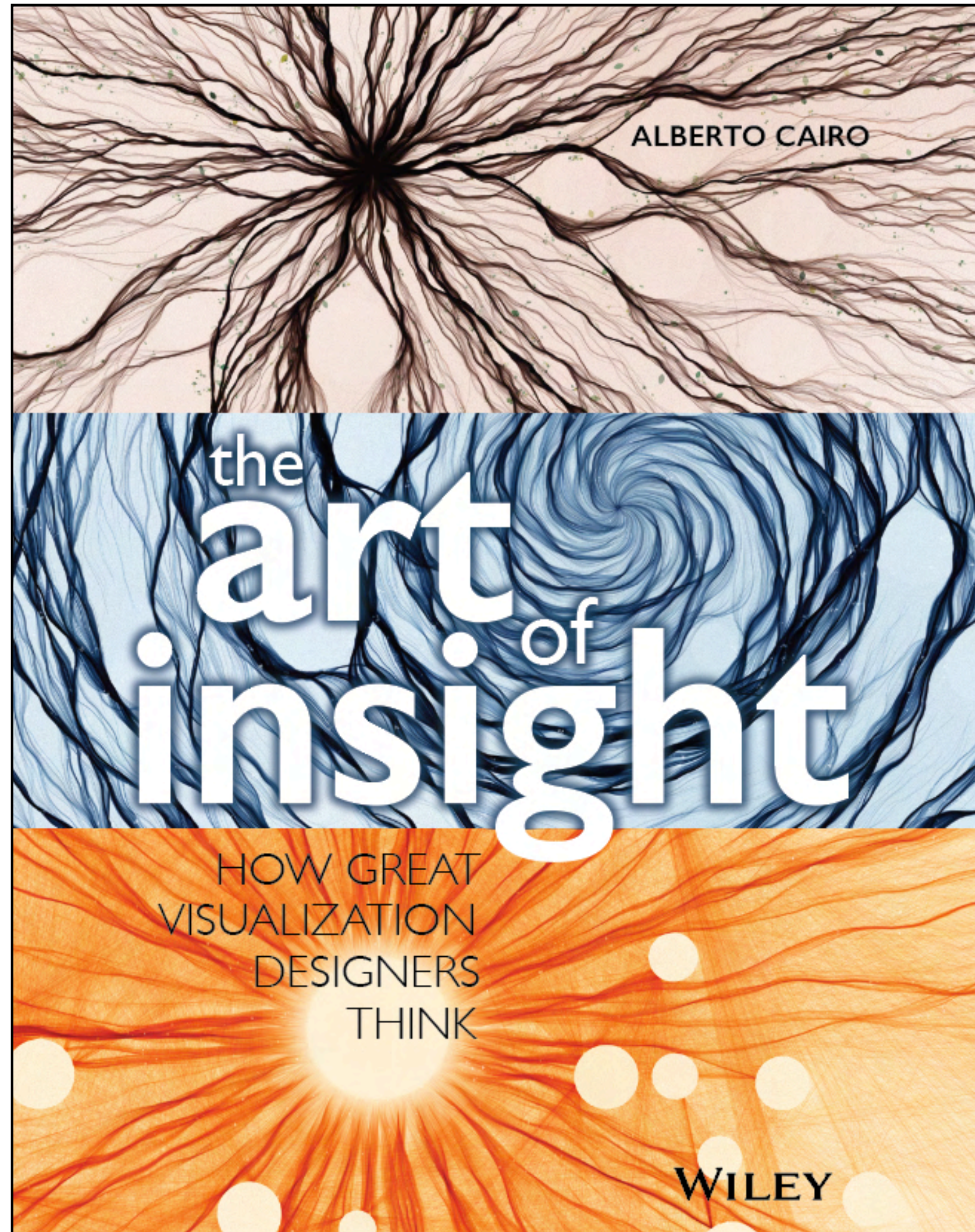
FactCheck.org chart based on FBI data

The danger of aggregating data too much,
and presenting just averages and other statistical summaries



The danger of aggregating data too much,
and presenting just averages and other statistical summaries





Visualization design consists of **reasoning** about possible **choices** by considering the interplay between:

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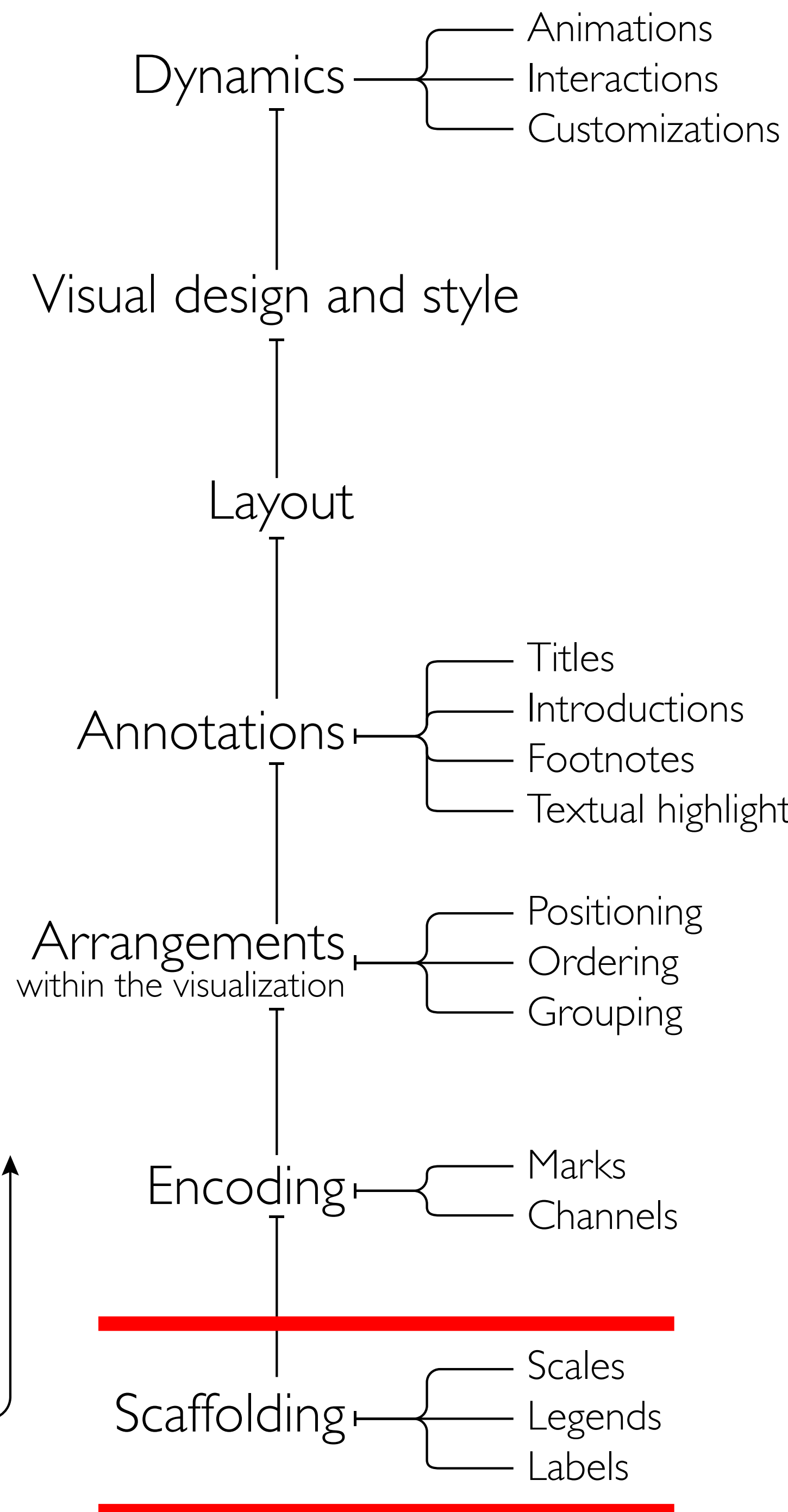
Every design choice must be **deliberate**.
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Reasoning about the components of a visualization

Visualization: Layers and elements to think about

Considerations about
the information
to be visualized
—they influence
everything else.

Read from
the bottom-up



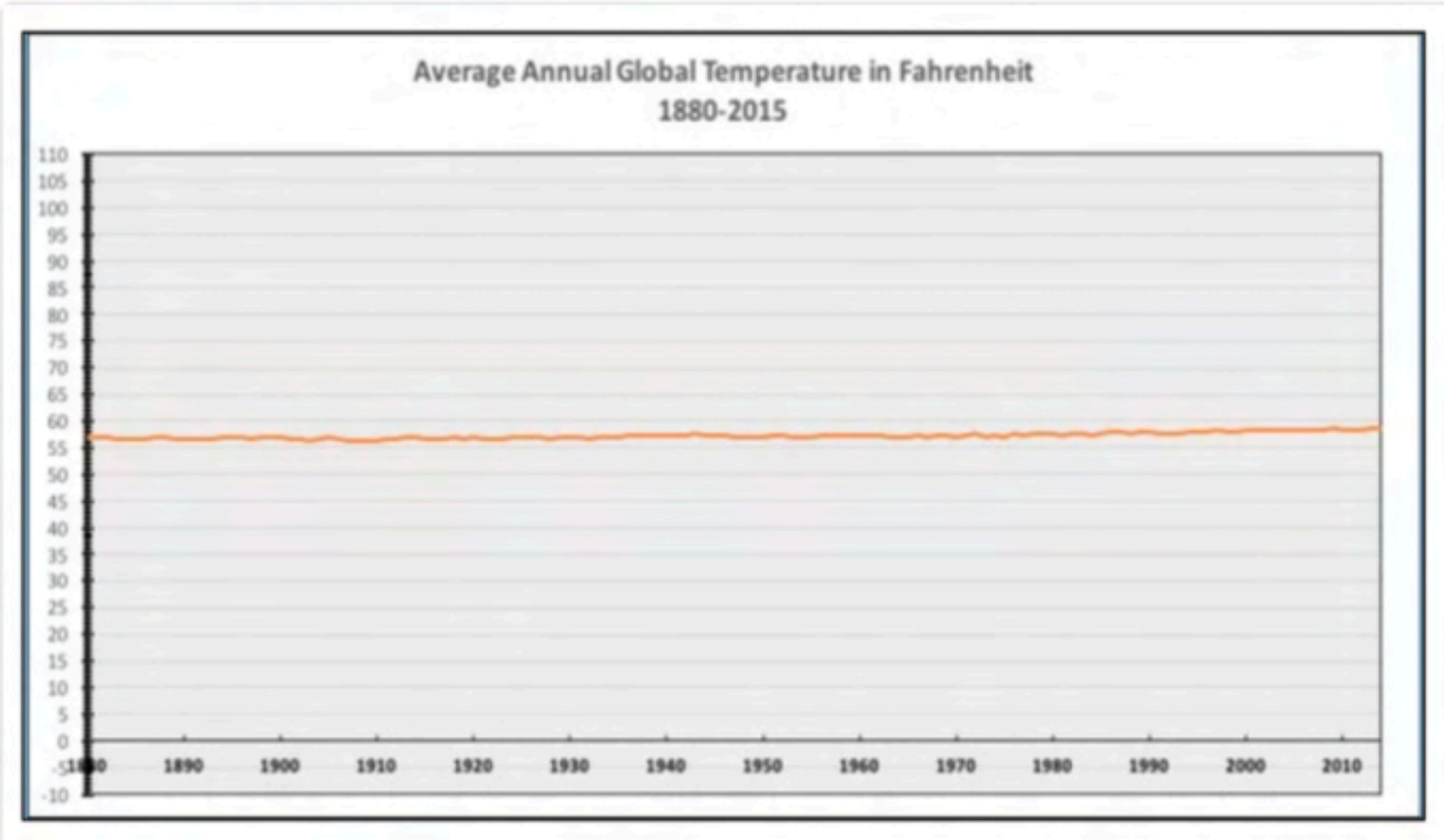
Decisions related to scales and legends can deeply affect our perception of the data



Follow

The only [#climatechange](#) chart you need to see. natl.re/wPKpro

(h/t [@powerlineUS](#))



1:36 PM - 14 Dec 2015

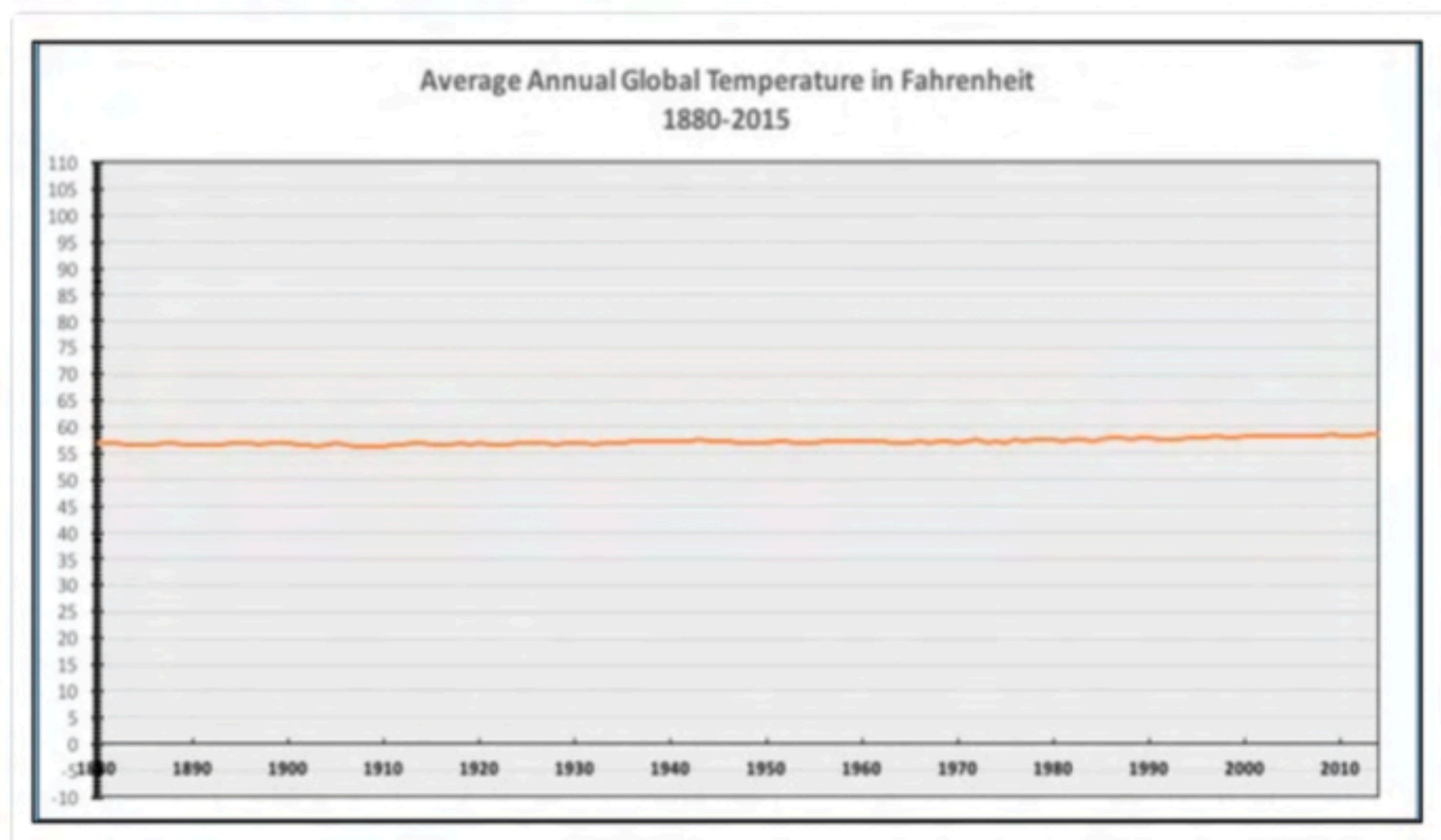
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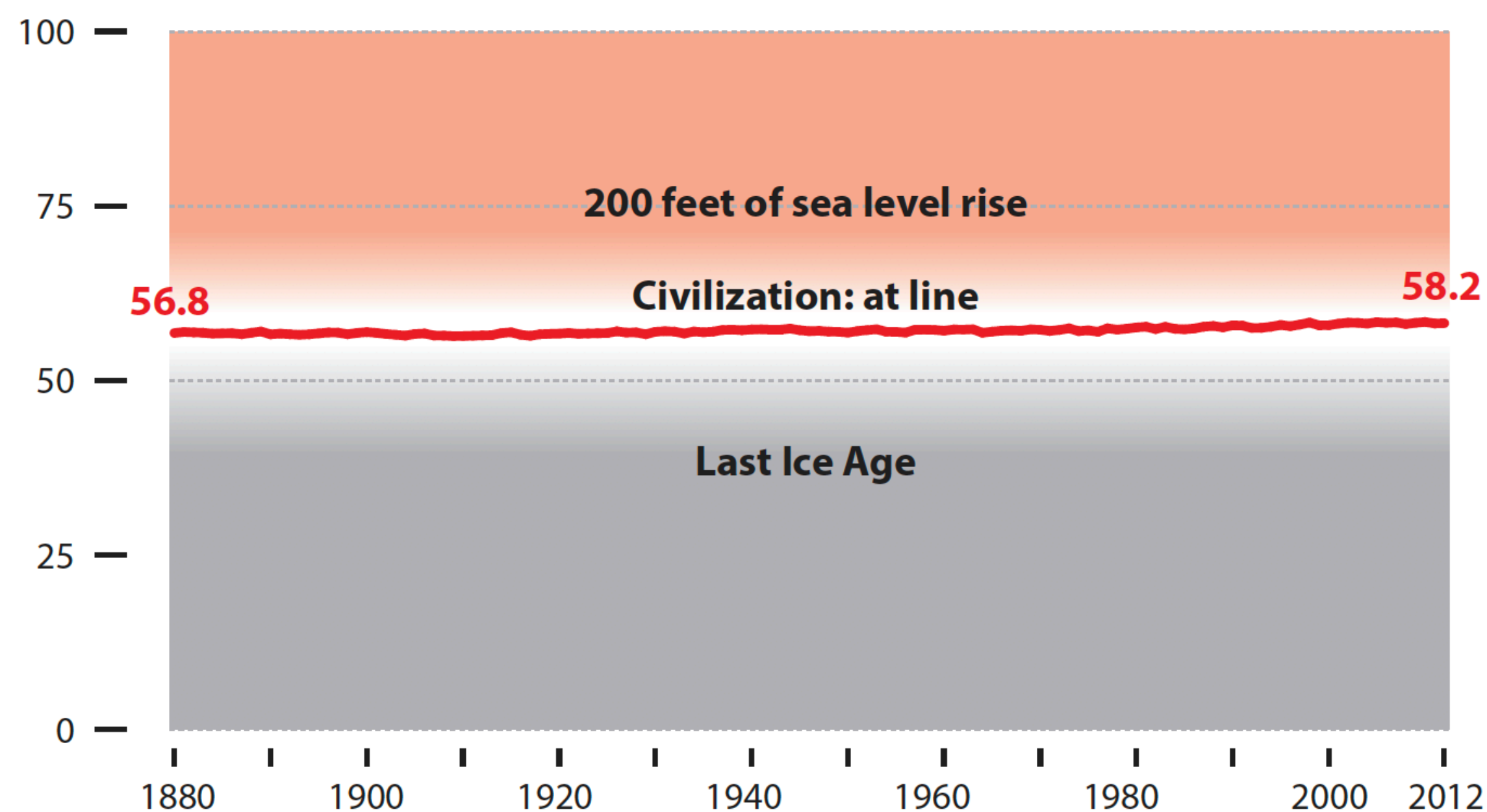
(h/t [@powerlineUS](#))



1:36 PM - 14 Dec 2015

Richard Reiss, a research fellow at the City University of New York's Institute for Sustainable Cities added some tongue-in-cheek annotations to the original chart that reveal one of the many reasons why the choice of scales is so wrong:

AVERAGE ANNUAL GLOBAL TEMPERATURE IN FAHRENHEIT DEGREES



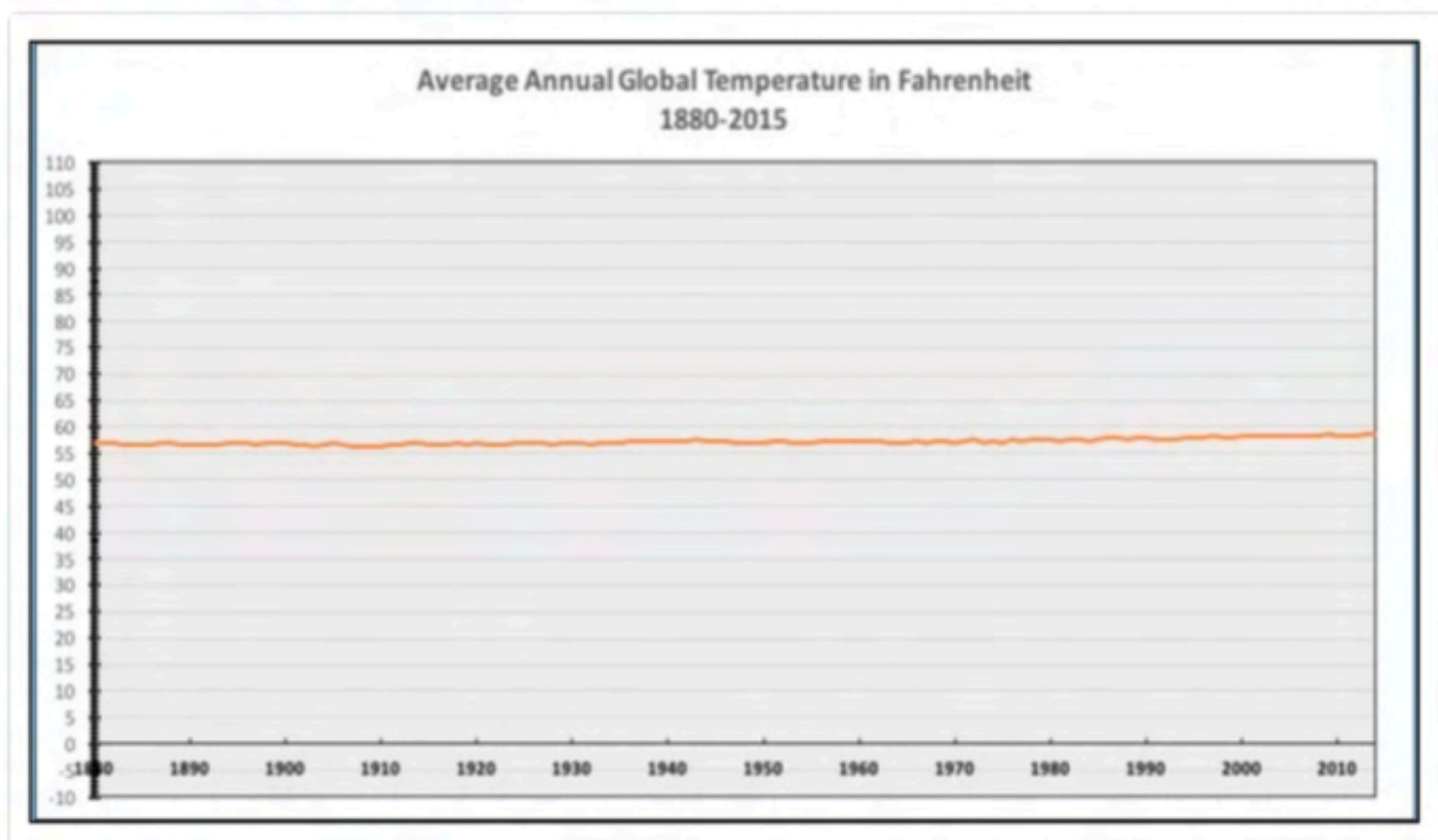
Decisions related to scales and legends can deeply affect our perception of the data



Follow

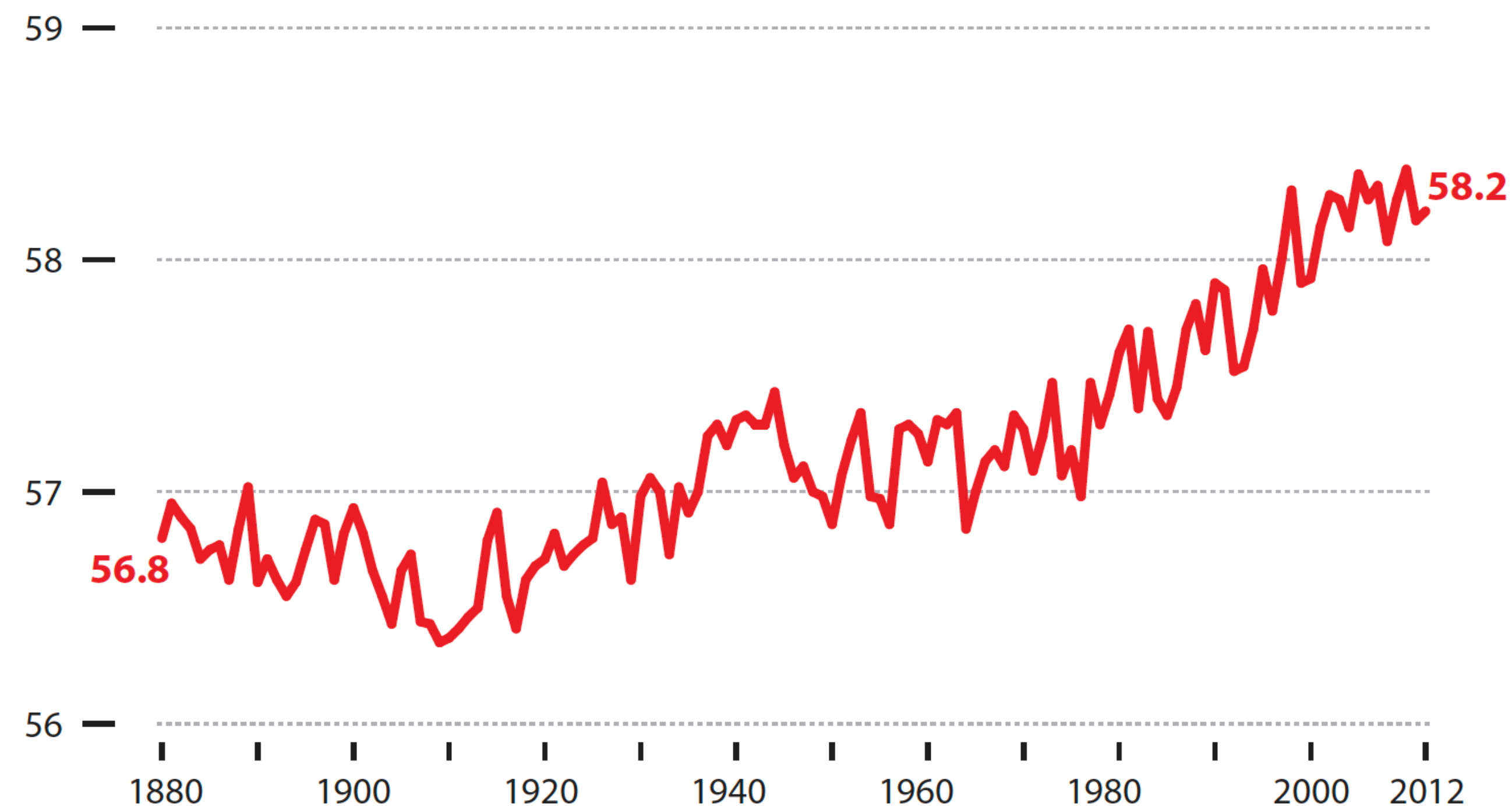
The only [#climatechange](#) chart you need to see. natl.re/wPKpro

(h/t [@powerlineUS](#))



1:36 PM - 14 Dec 2015

AVERAGE ANNUAL GLOBAL TEMPERATURE IN FAHRENHEIT DEGREES



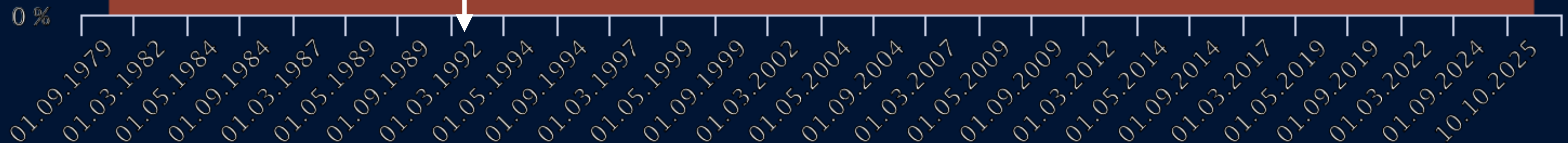
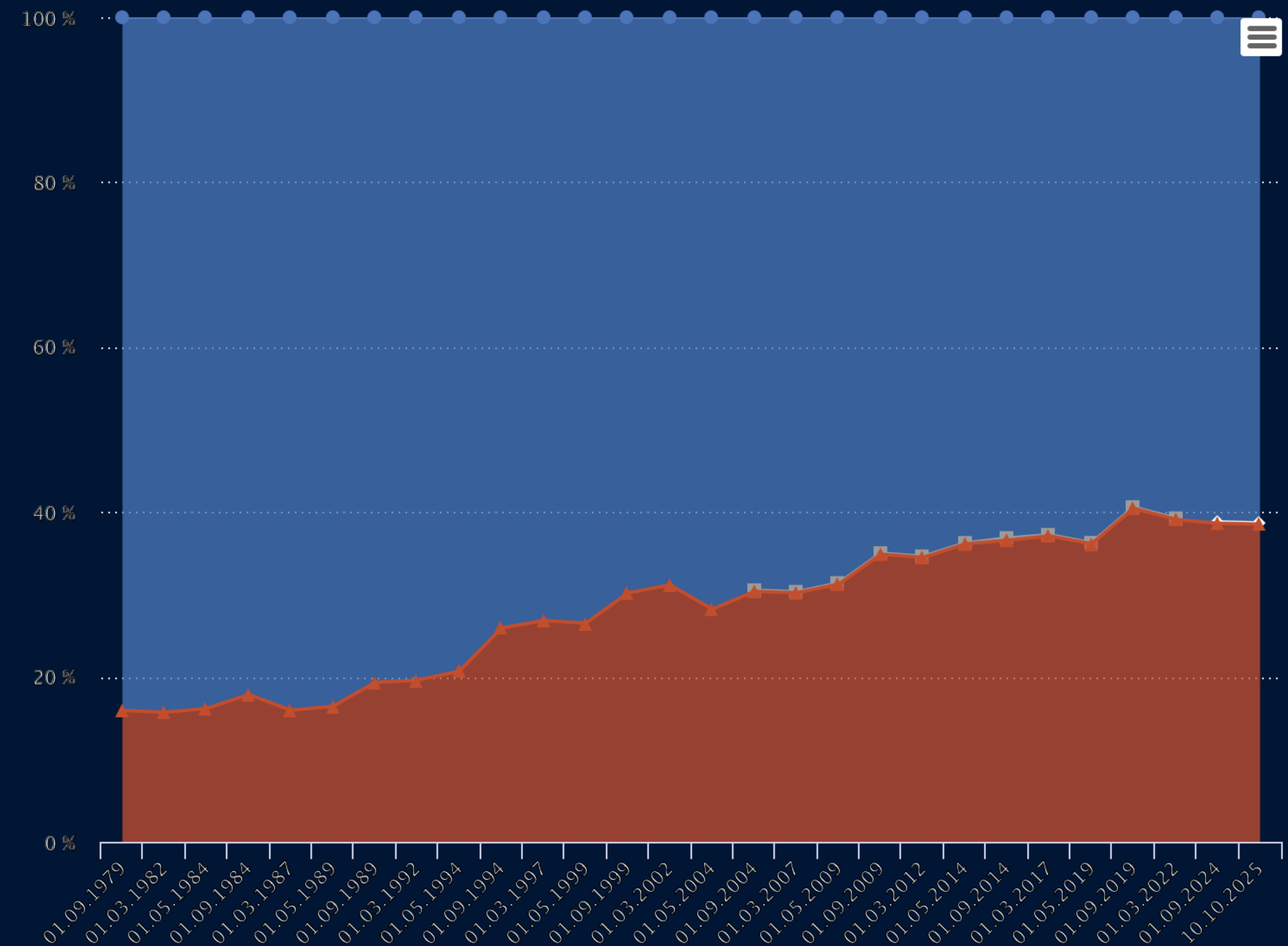
A more reasonable Y-scale

Proportion of female and male representation

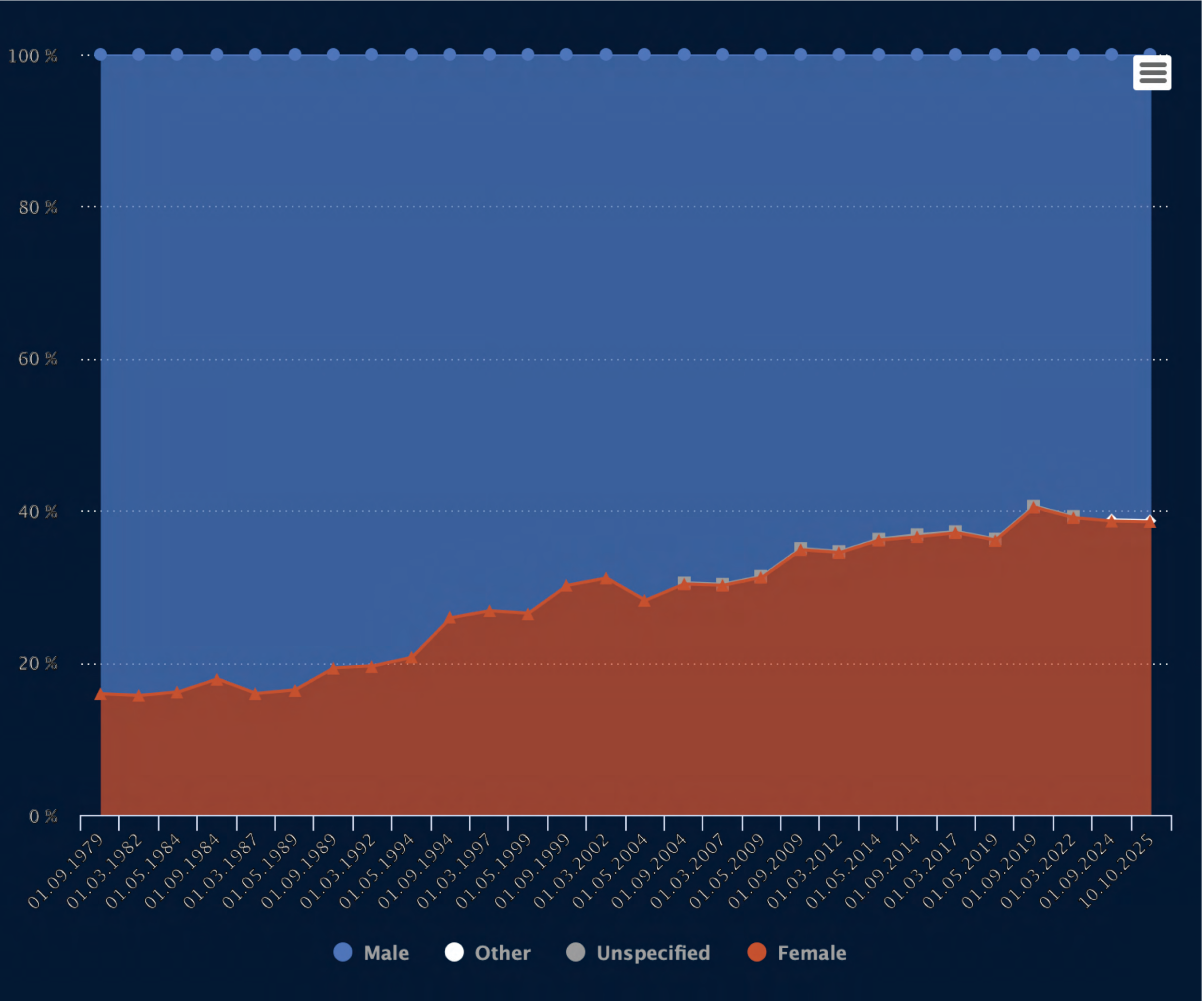
This area chart shows the share of female and male representatives in the EP since 1979. If you roll your mouse over the chart, you will see the number of female and male MEPs at the date shown.

Source: European Parliament

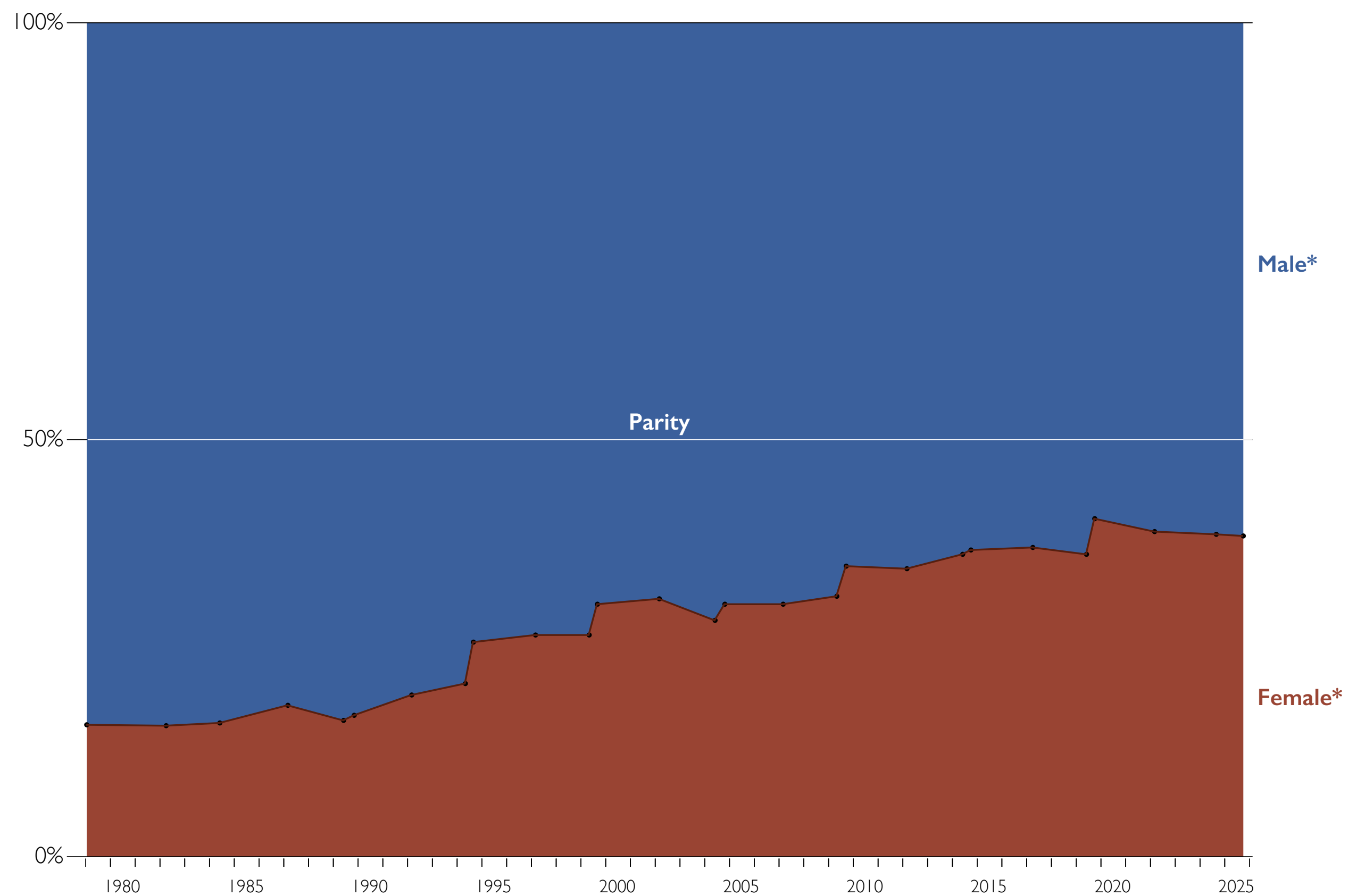
Notice that intervals on the X scale are even—but they shouldn't be, because time intervals aren't even!



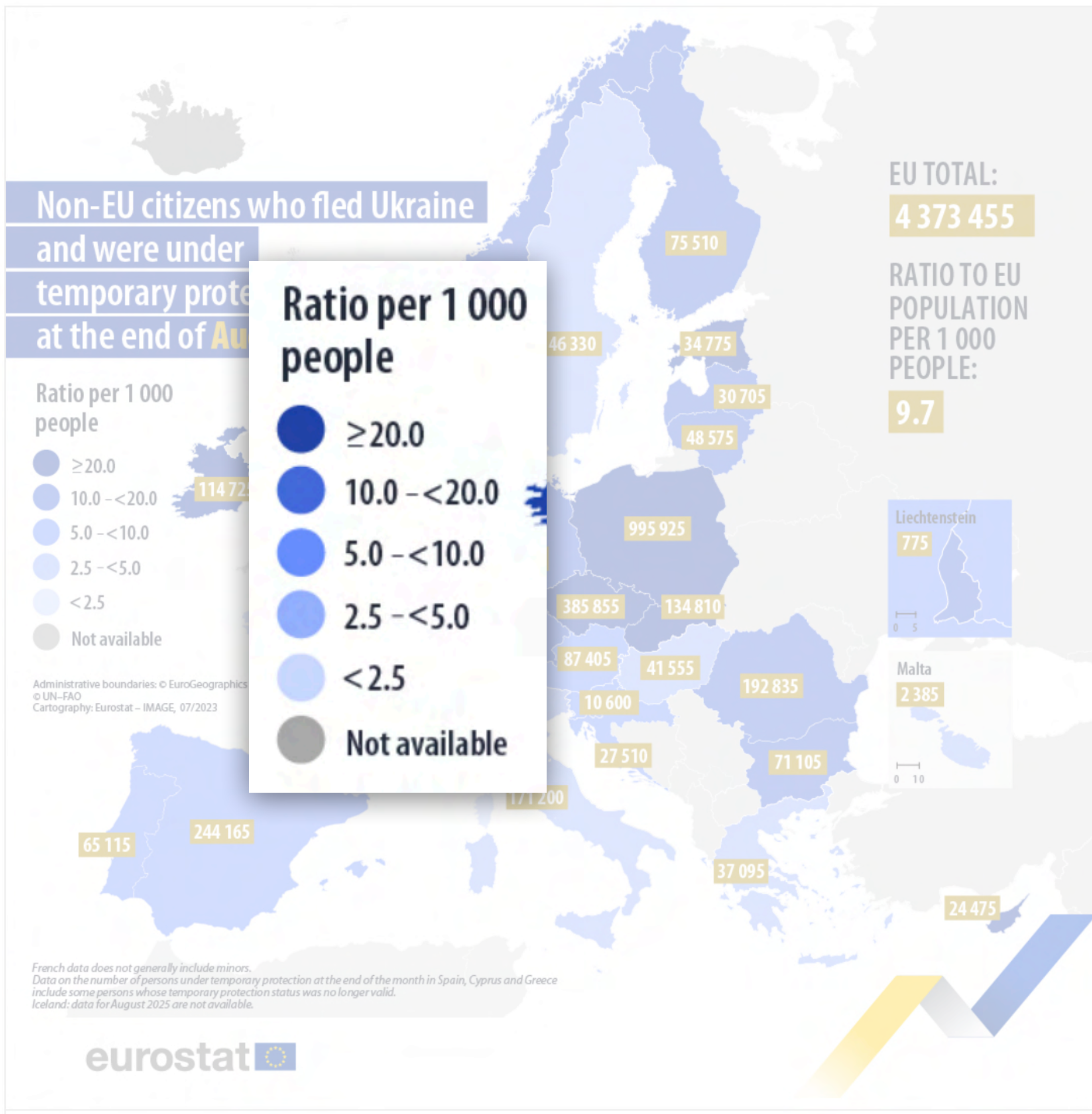
Original



Alternative (warning: this is just a quick draft)

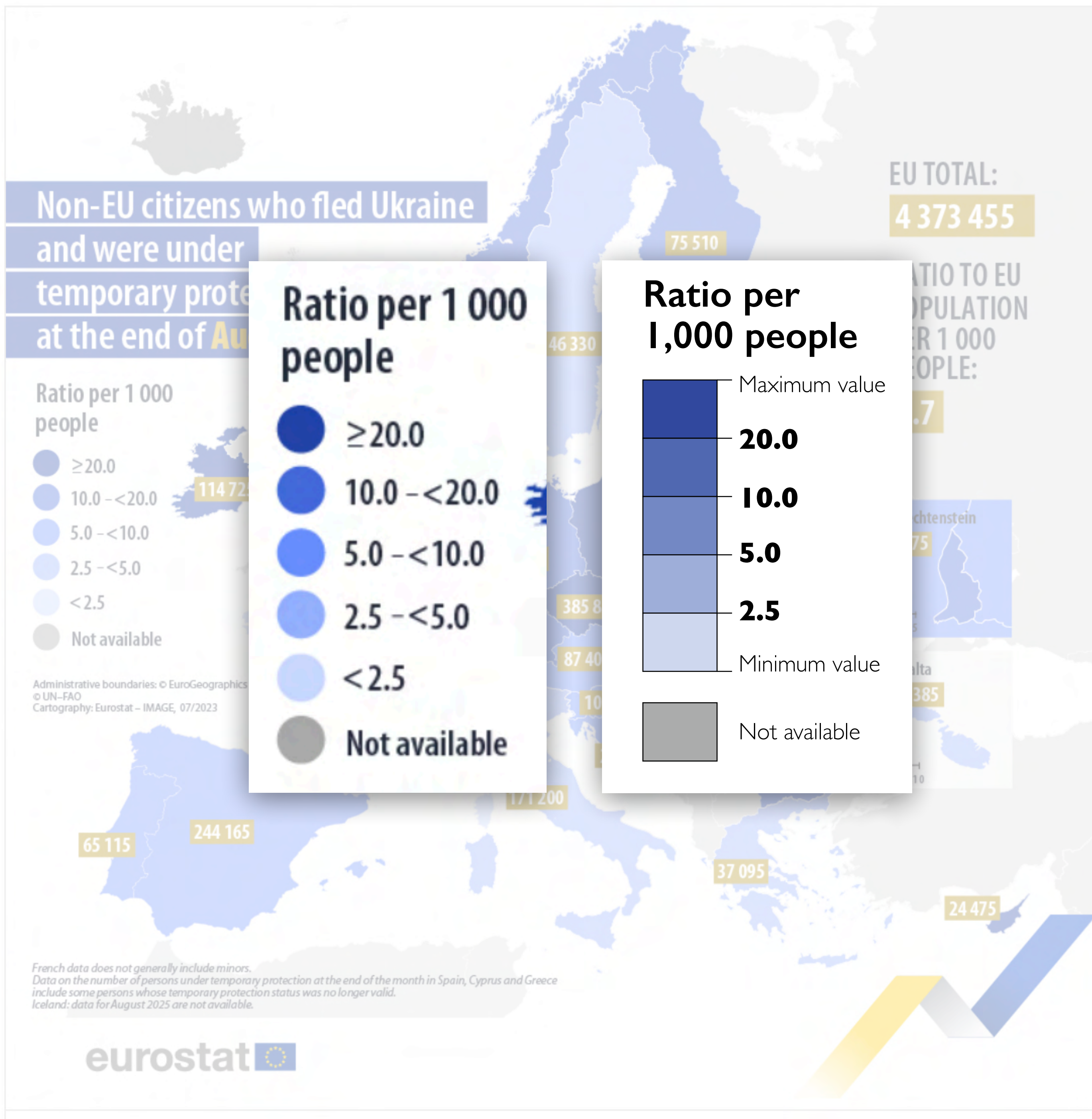


***Note about this quick-and-dirty chart makeover:** The original included the categories Other and Unspecified, corresponding to non-binary or transgender people. The percentages of these categories are too small to be represented accurately on a 0-100% scale. Therefore, an additional chart just for them would be needed.



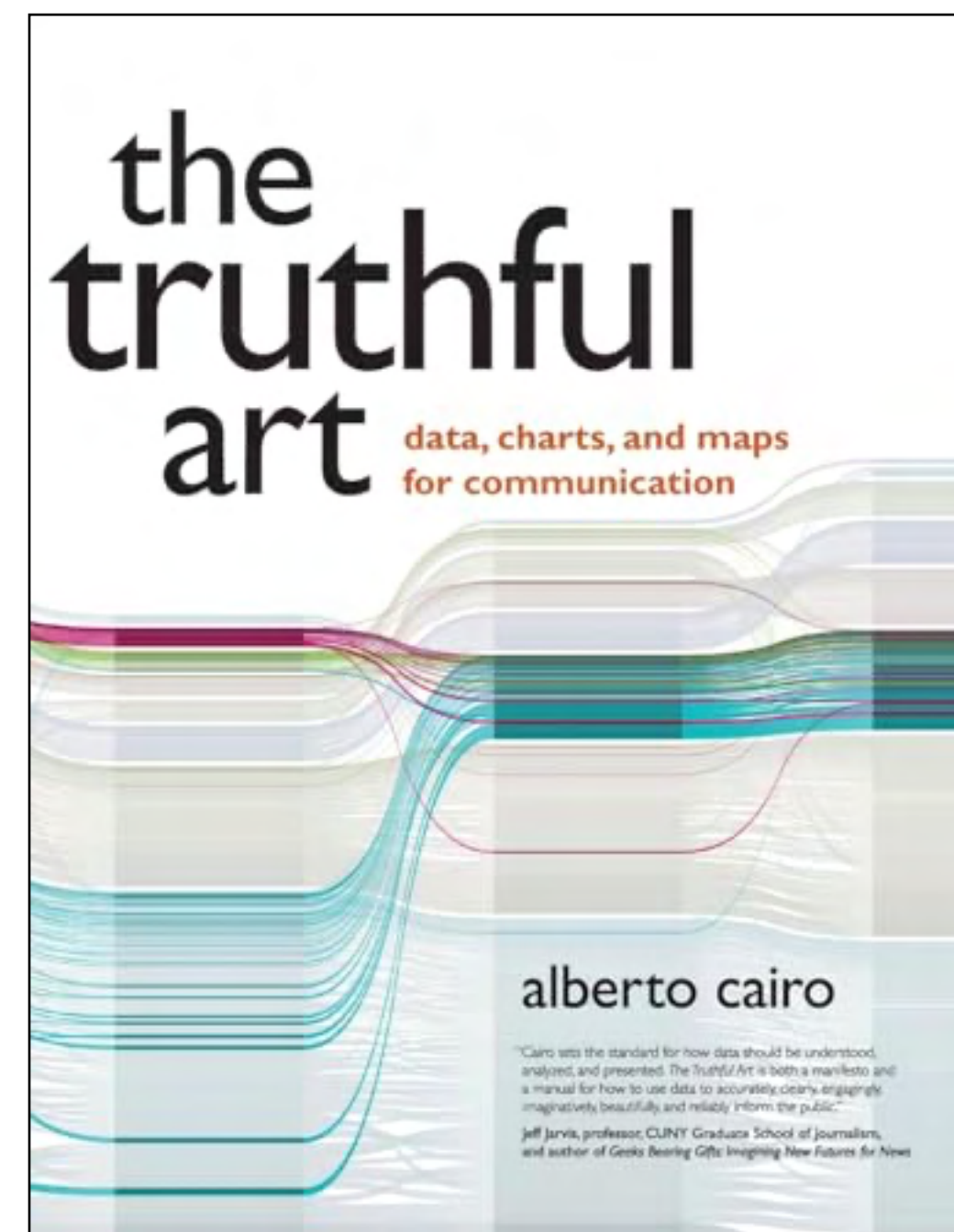
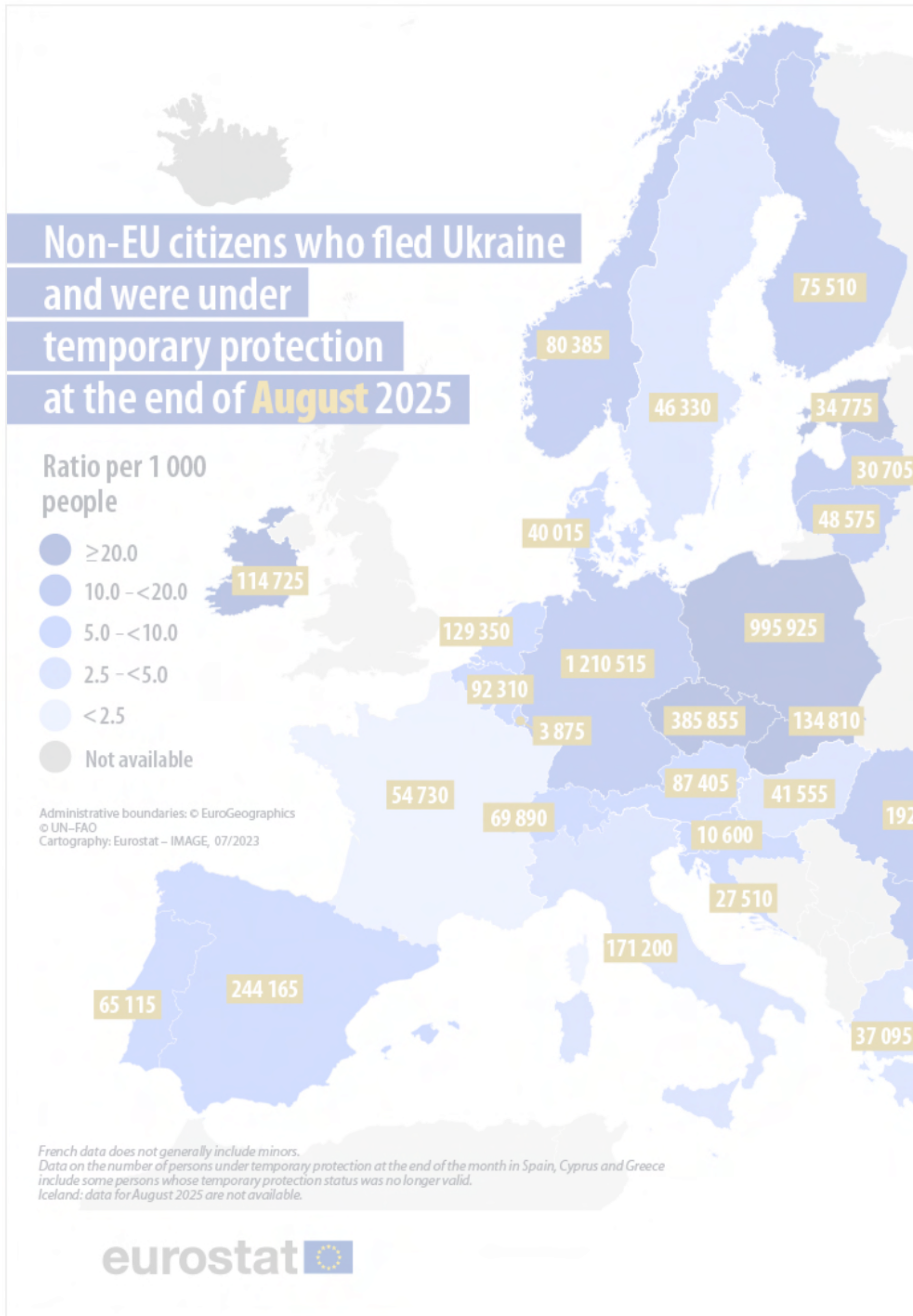
Map scales

https://ec.europa.eu/eurostat/statistics-explained/index.php?title=Temporary_protection_for_persons_fleeing_Ukraine_-_monthly_statistics



Map scales

https://ec.europa.eu/eurostat/statistics-explained/index.php?title=Temporary_protection_for_persons_fleeing_Ukraine_-_monthly_statistics



Chapter 10 of *The Truthful Art*

<https://drive.google.com/file/d/1Ap4ehrBDXBSDPcnPXCTeg9cVHIU9kOeX/>

10 Mapping Data

A map does not just chart, it unlocks and formulates meaning; it forms bridges between here and there, between disparate ideas that we did not know were previously connected.

—Reif Larsen, *The Selected Works of T. S. Spivet*

In a broad sense of the word, this entire book is about maps, as it deals with the spatial representation of information with the goal of revealing the unseen. In this chapter, I will be using a narrower meaning of “map” to refer just to visualizations that display attributes or variables over pictures of geographical areas.

As any of the other graphic forms we’ve learned about so far, maps can be used to communicate or to explore information. Maps are critical to many areas of inquiry, from epidemiology to climate science.

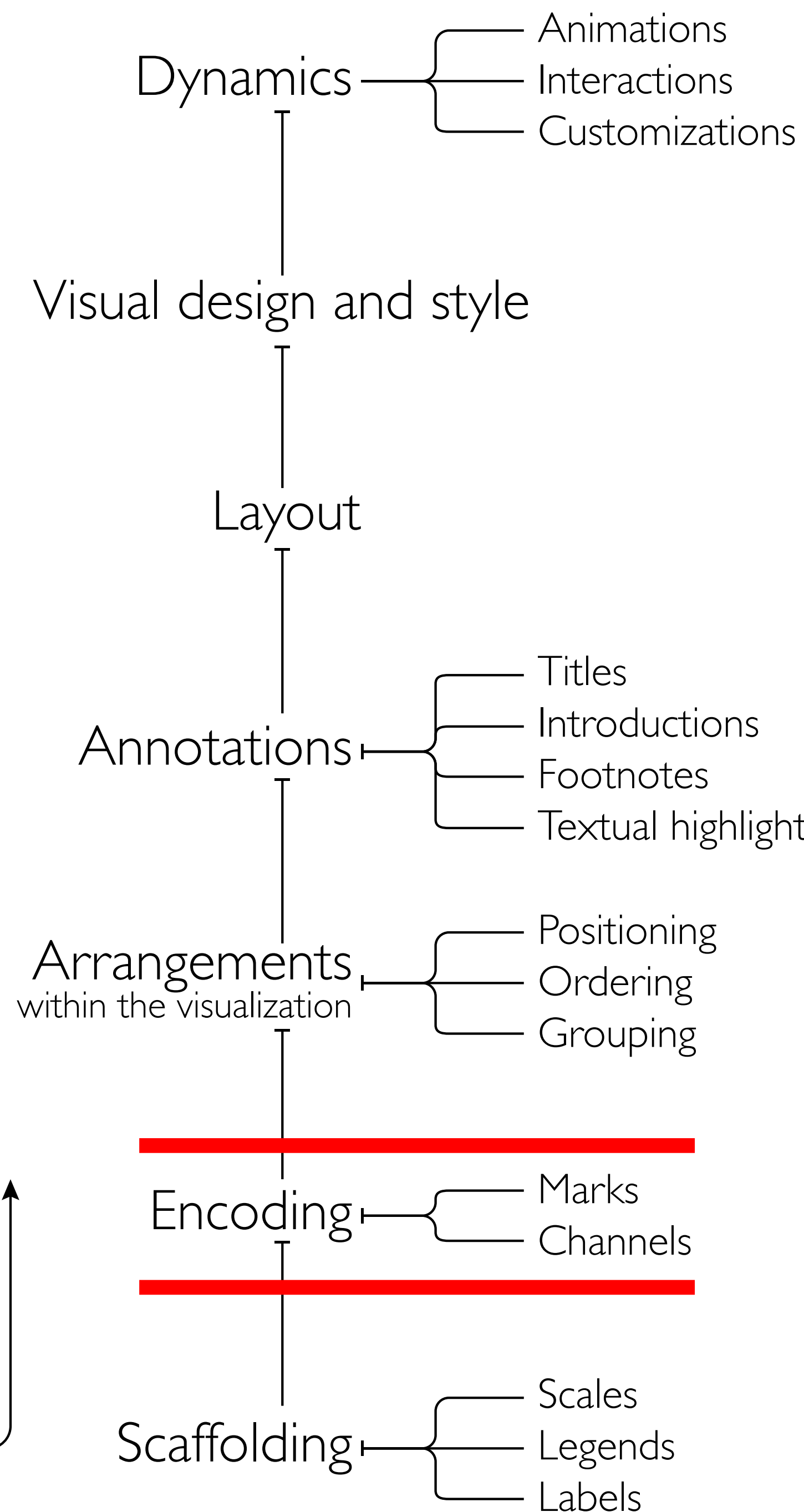
The main attributes of a map are its scale, its projection, and the symbols used to depict information.¹ The scale is a measure of the proportion between distances and sizes on the map and those on the area represented—that is, how big is the map compared to reality?

¹ In the next few pages, I will be following Mark Monmonier's *How to Lie With Maps* (2nd ed., 1996.) For a complete list of books consulted, see the references at the end of this chapter.

Visualization: Layers and elements to think about

Considerations about
the information
to be visualized
—they influence
everything else.

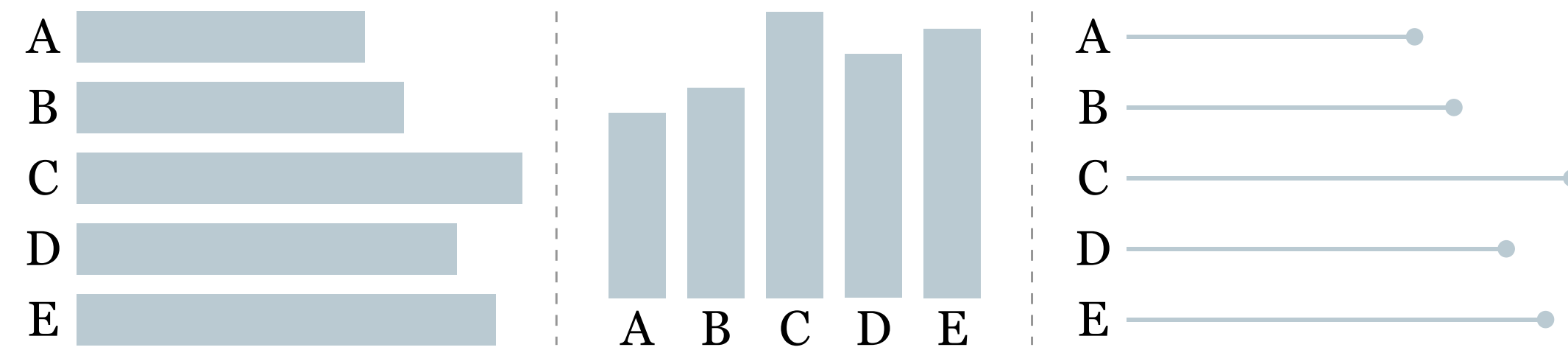
Read from
the bottom-up



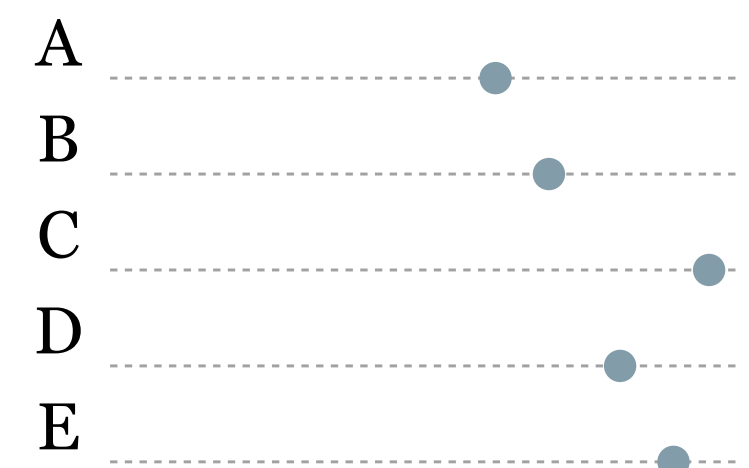
Static
visualizations

Dynamic
visualizations

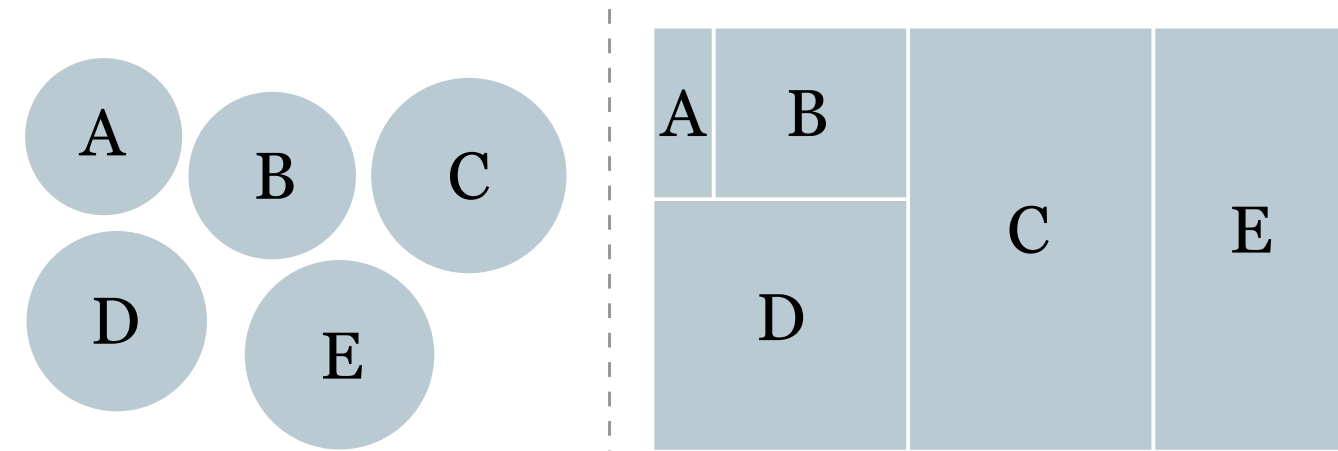
Length or height



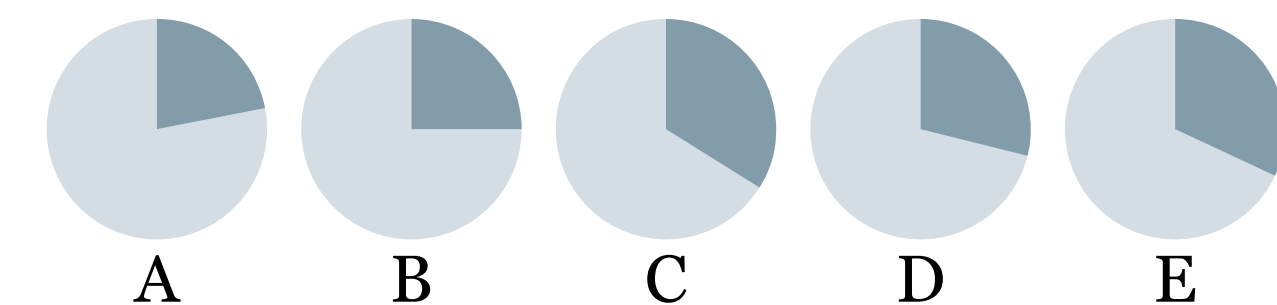
Position



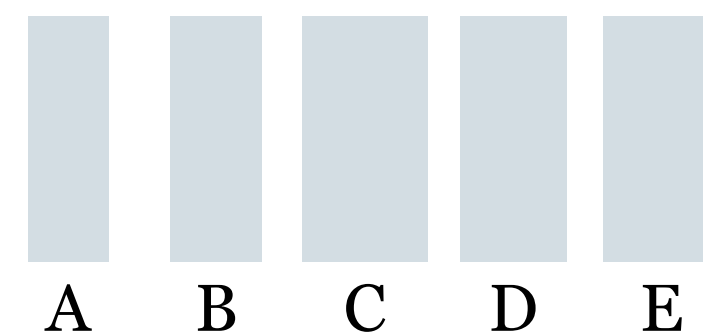
Area



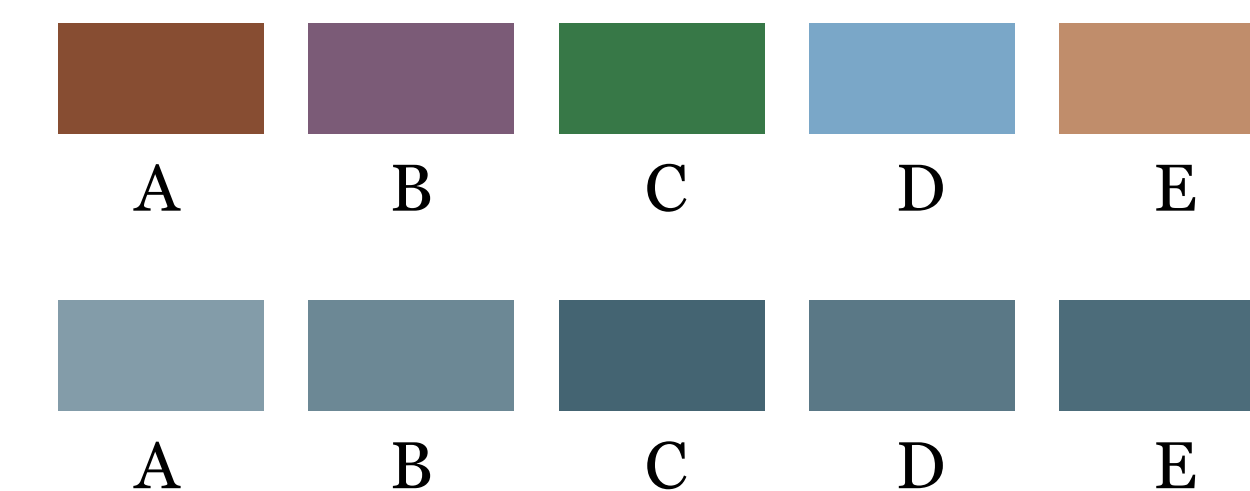
Angle/area



Line weight



Hue and shade



Figures represented
in all these graphics:
22%, 25%, 34%, 29%, 32%

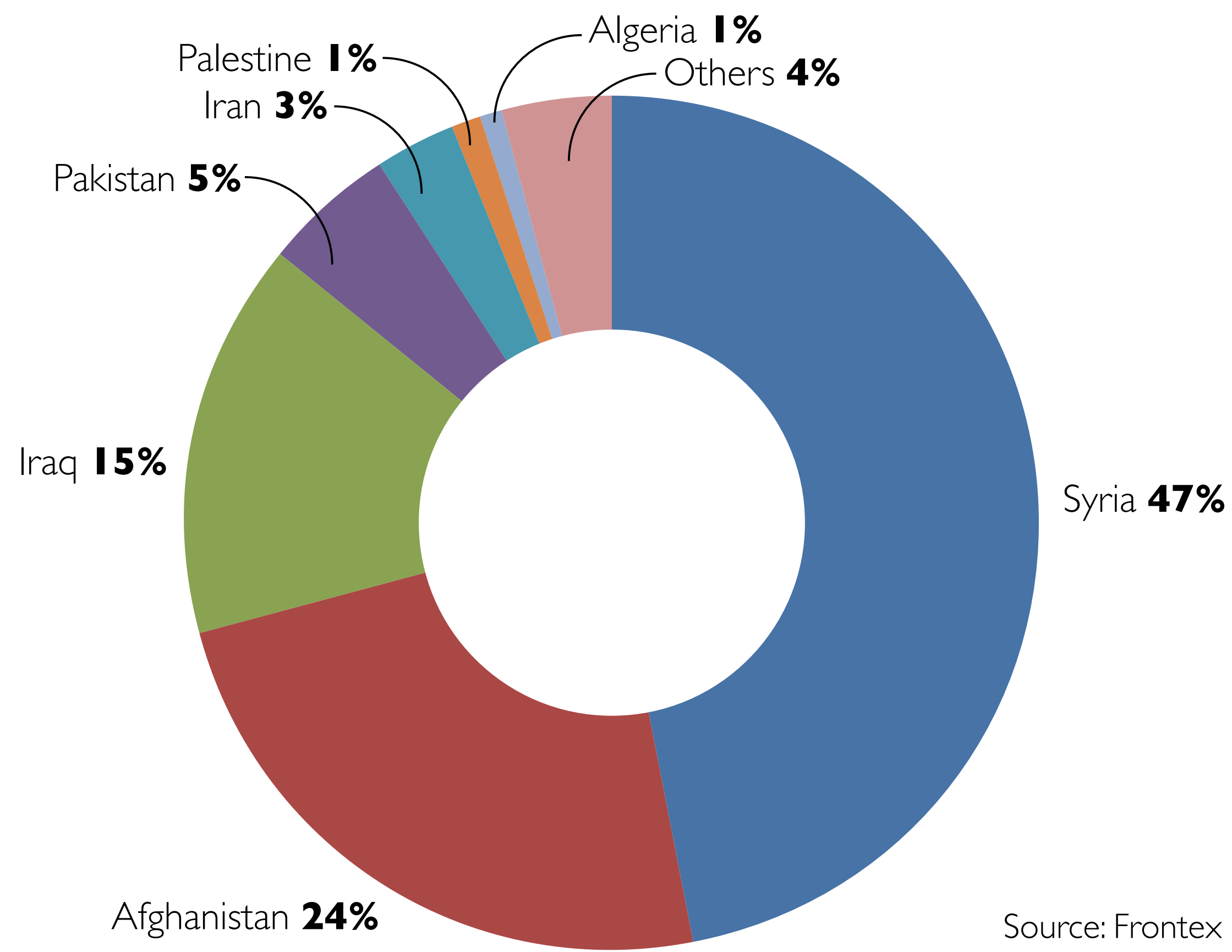
Encoding

Data visualization consists of mapping data onto attributes of objects—commonly abstract shapes, called **“marks”**.

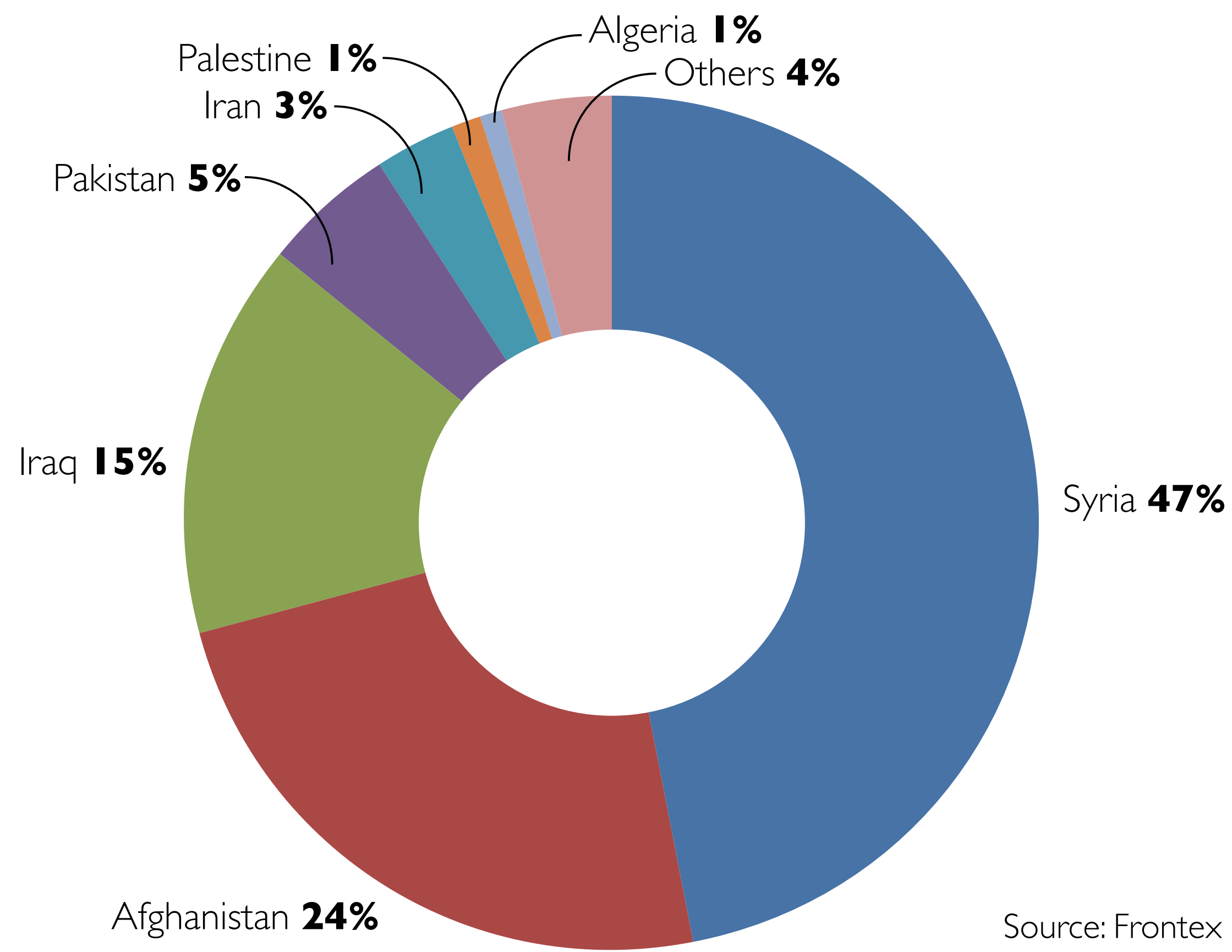
These attributes that vary with the data are called **“visual channels”**.

<https://web.cse.ohio-state.edu/~shen.94/Melbourne/Slides/TamaraChp5.pdf>

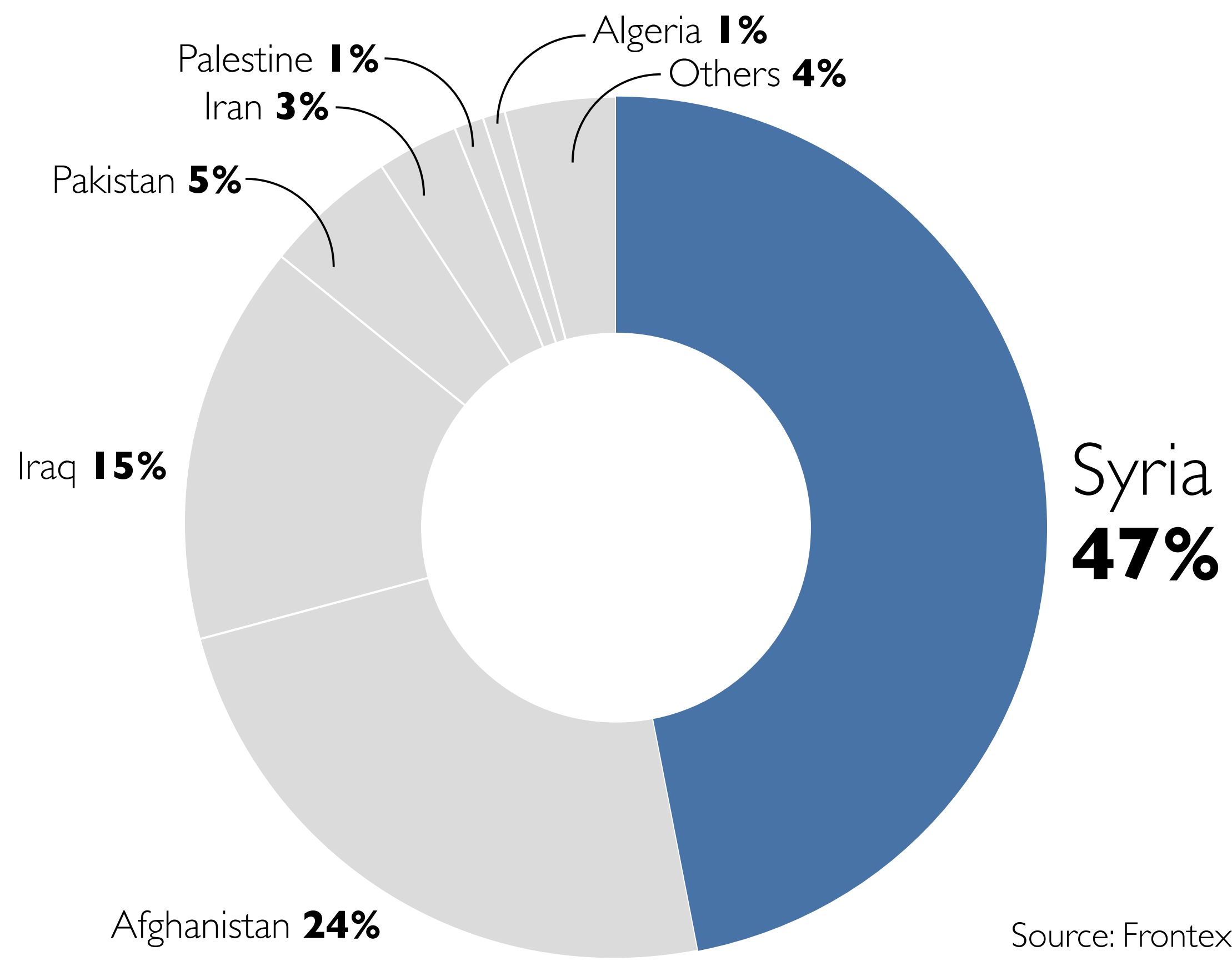
GREECE - Main nationalities of arriving migrants in 2016

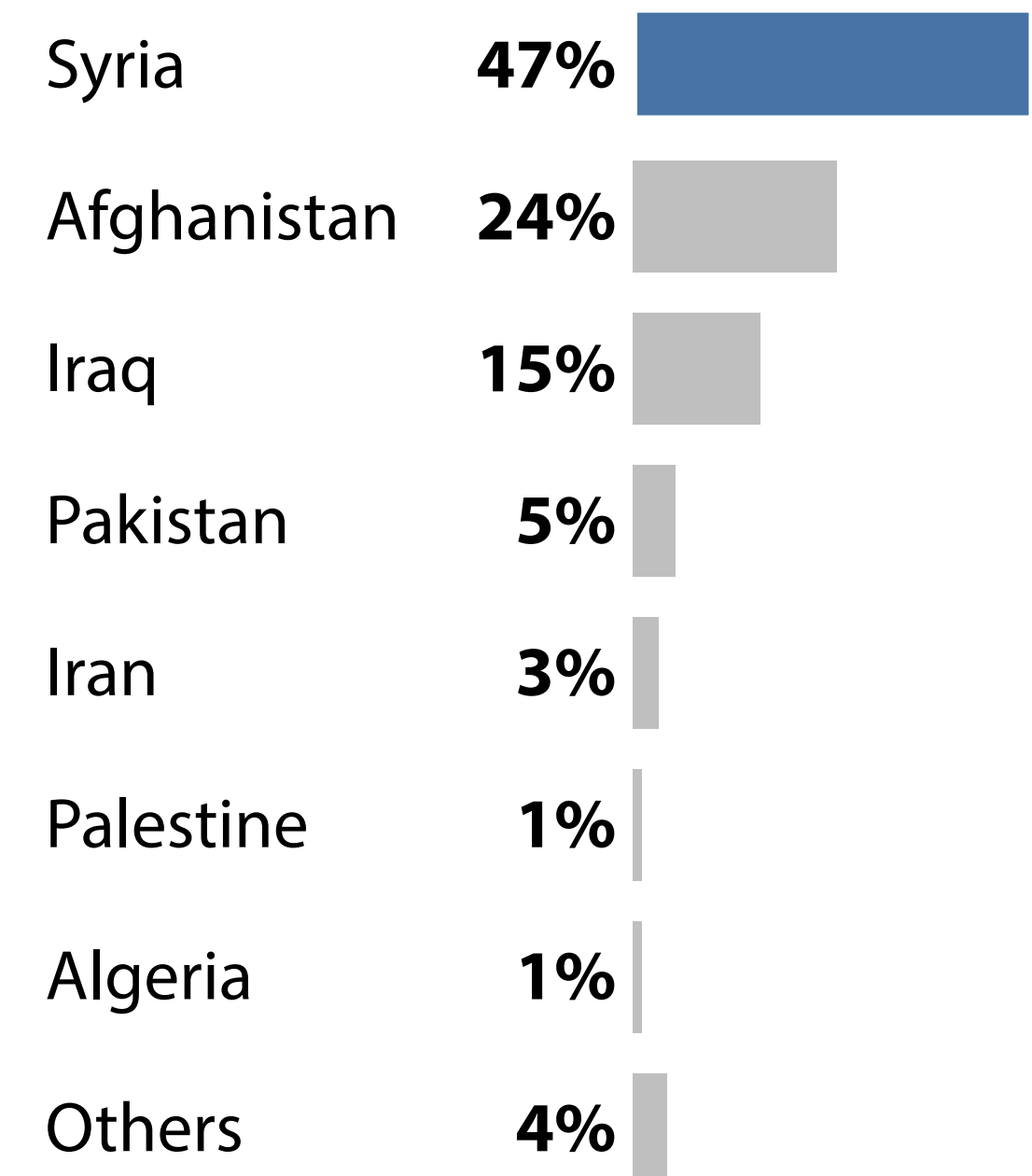
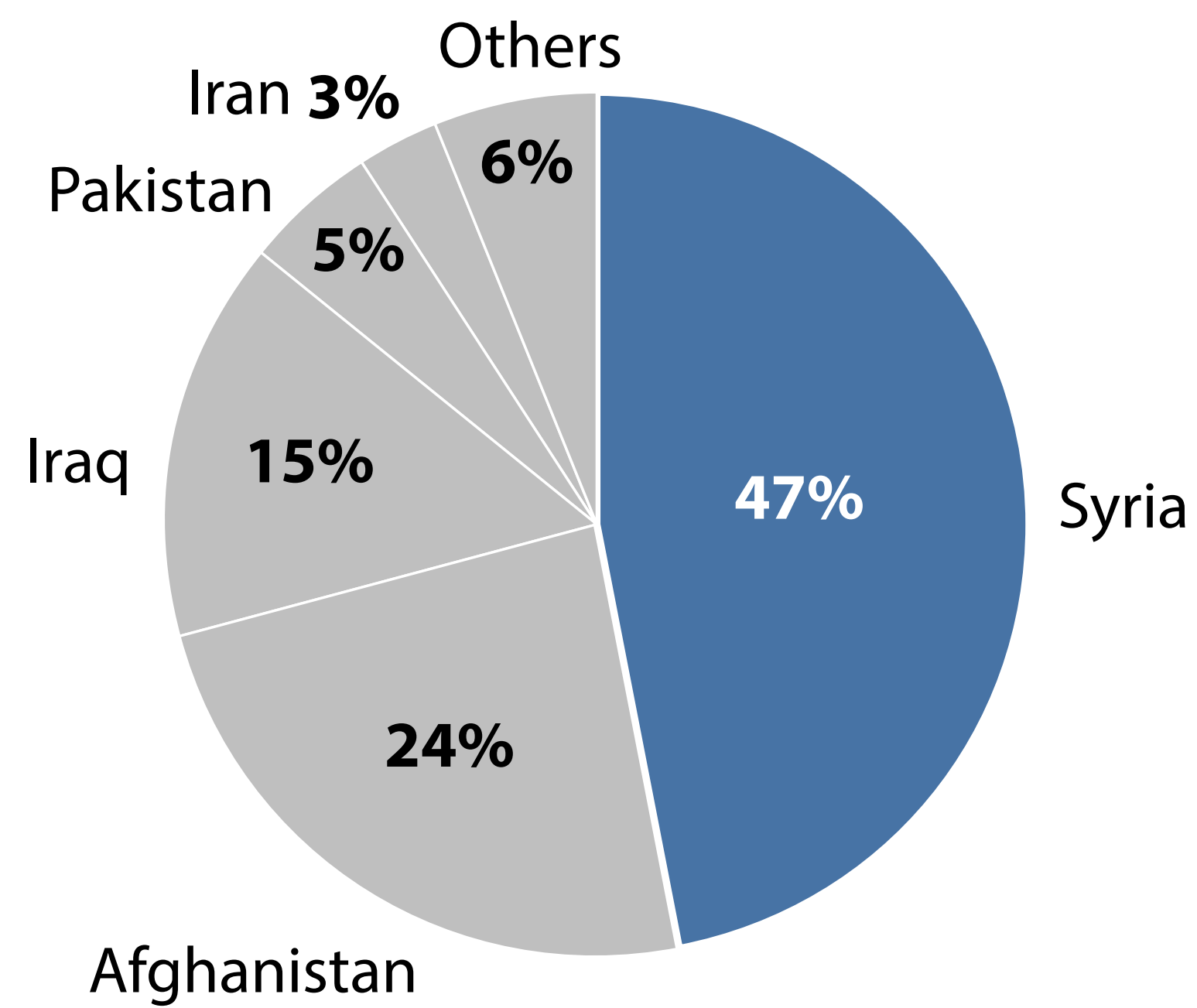


GREECE - Main nationalities of arriving migrants in 2016



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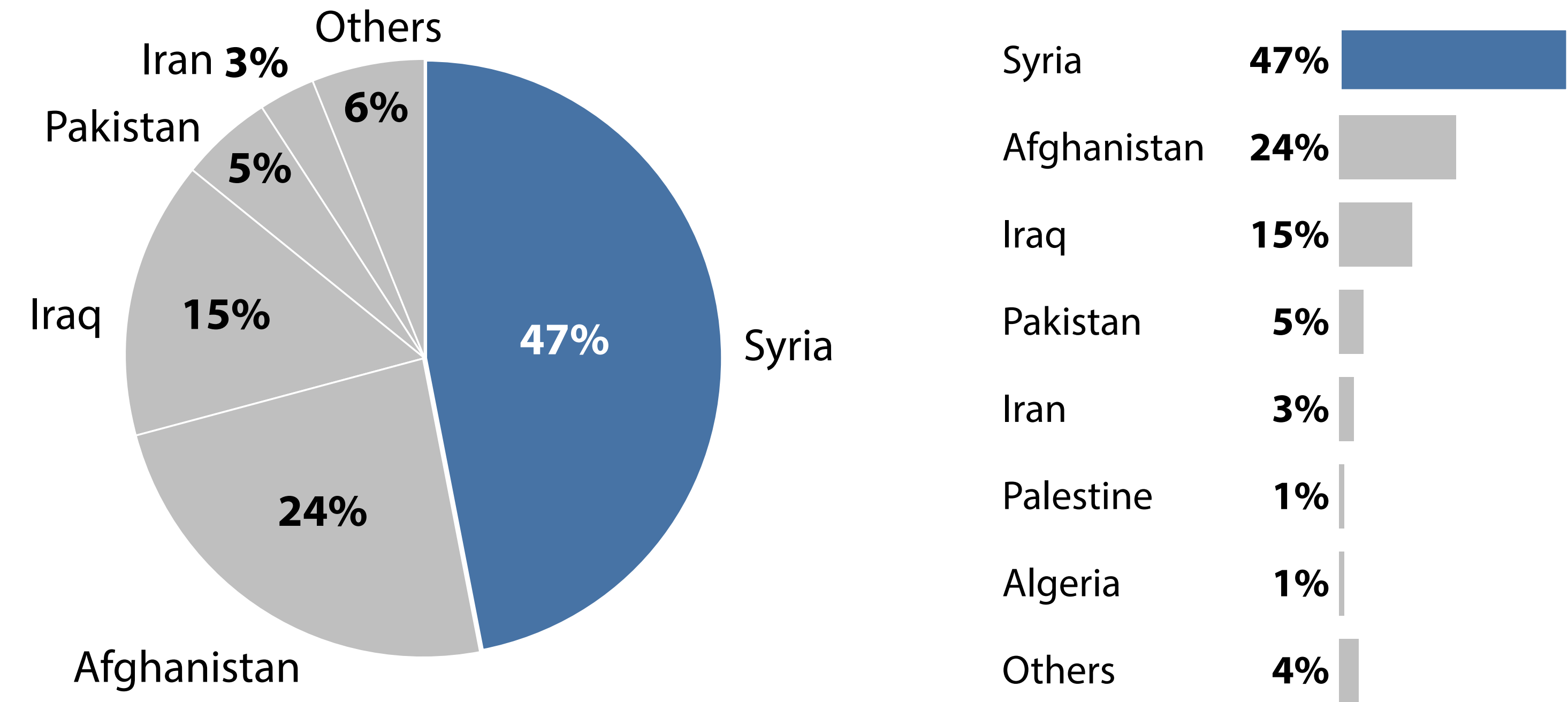
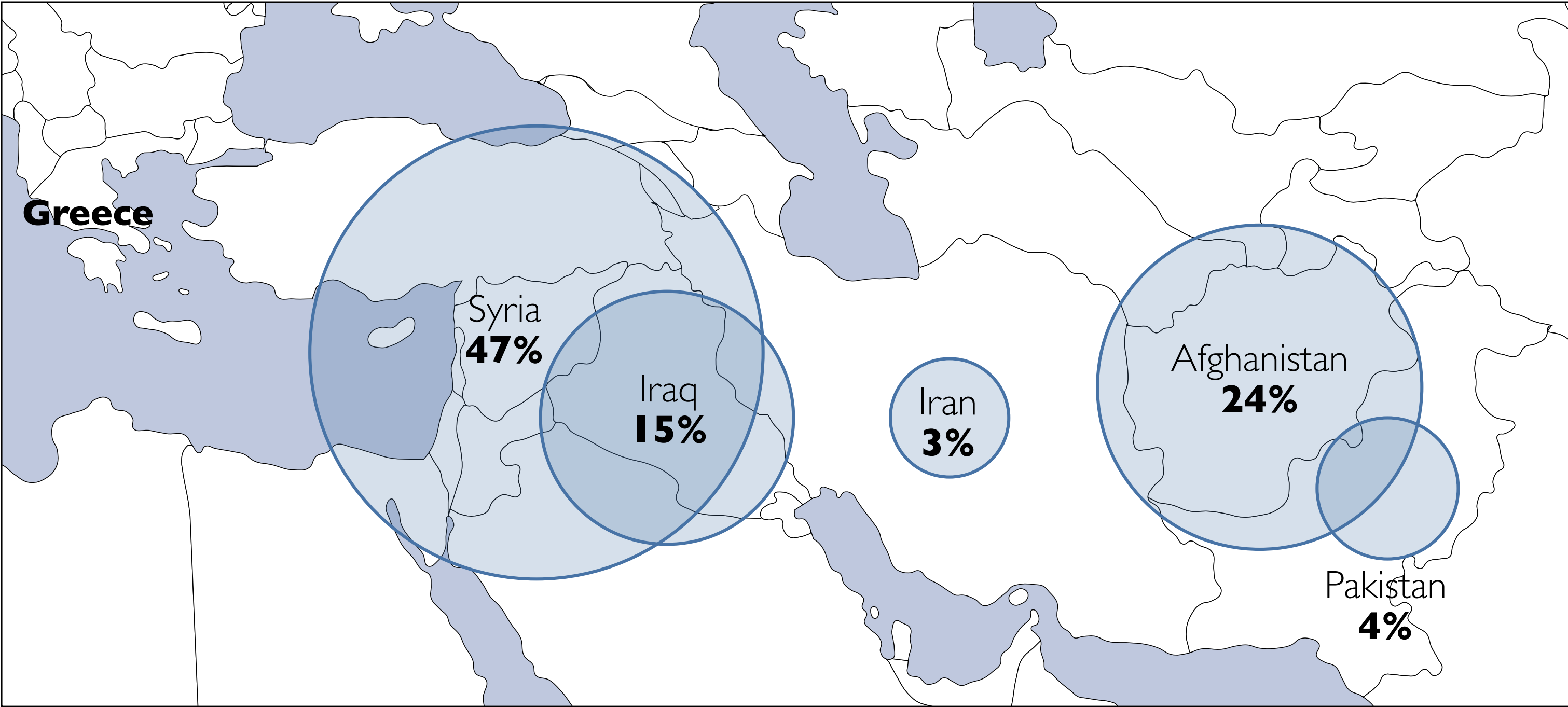




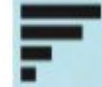


























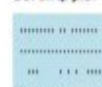

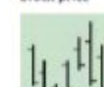

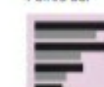






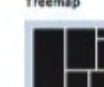
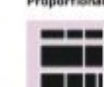


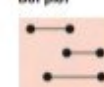


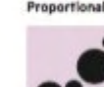


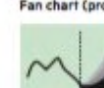





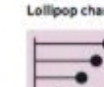




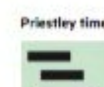

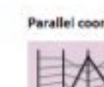




None of these charts is *right* or *wrong*, *good* or *bad* per se.

They are just **better** or **worse** depending on our **intent**:

What it is that we want to communicate, what we want our reader to **be able to see in the data**.



Deviation	Correlation	Ranking	Distribution	Change over Time	Part-to-whole	Magnitude	Spatial	Flow
<p>Emphasise variations (+/-) from a fixed reference point. Typically the reference point is zero but it can also be a target or a long-term average. Can also be used to show sentiment (positive/neutral/negative).</p> <p>Example FT uses Trade surplus/deficit, climate change</p>	<p>Show the relationship between two or more variables. Be mindful that unless you tell them otherwise, many readers will assume the relationships you show them to be causal (i.e. one causes the other).</p> <p>Example FT uses Inflation & unemployment, income & life expectancy</p>	<p>Use where an item's position in an ordered list is more important than its absolute or relative value. Don't be afraid to highlight the points of interest.</p> <p>Example FT uses Wealth, deprivation, league tables, constituency election results</p>	<p>Show values in a dataset and how often they occur. The shape (or 'view') of a distribution can be a memorable way of highlighting the lack of uniformity or equality in the data.</p> <p>Example FT uses Income distribution, population (age/sex) distribution</p>	<p>Give emphasis to changing trends. These can be short (intra-day) movements or extended series traversing decades or centuries. Choosing the correct time period is important to provide suitable context for the reader.</p> <p>Example FT uses Share price movements, economic time series</p>	<p>Show how a single entity can be broken down into its component elements. If the reader's interest is solely in the size of the components, consider a magnitude-type chart instead.</p> <p>Example FT uses Fiscal budgets, company structures, national election results</p>	<p>Show size comparisons. These can be relative (just being able to see larger/smaller) or absolute (need to see fine differences). Usually these show a 'counted' number (for example, barrels, dollars or people) rather than a calculated rate or per cent.</p> <p>Example FT uses Commodity production, market capitalisation</p>	<p>Used only when precise locations or geographical patterns in data are more important to the reader than anything else.</p> <p>Example FT uses Locator maps, population density, natural resource locations, natural disaster risk/impact, catchment areas, variation in election results</p>	<p>Show the reader volumes or intensity of movement between two or more states or conditions. These might be logical sequences or geographical locations.</p> <p>Example FT uses Movement of funds, trade, migrants, lawsuits, information, relationship graphs.</p>
<p>Diverging bar</p>  <p>A simple standard bar chart that can handle both negative and positive magnitude values.</p>	<p>Scatterplot</p>  <p>The standard way to show the relationship between two continuous variables, each of which has its own axis.</p>	<p>Ordered bar</p>  <p>Standard bar charts display the ranks of values much more easily when sorted into order.</p>	<p>Histogram</p>  <p>The standard way to show a statistical distribution - keep the gaps between columns small to highlight the 'shape' of the data.</p>	<p>Line</p>  <p>The standard way to show a changing time series. If data are regular, consider markers to represent data points.</p>	<p>Stacked column</p>  <p>A simple way of showing part-to-whole relationships but can be difficult to read with more than a few components.</p>	<p>Column</p>  <p>The standard way to compare the size of things. Must always start at 0 on the axis.</p>	<p>Basic choropleth (rate/ratio)</p>  <p>The standard approach for putting data on a map - should always be rates rather than totals and use a sensible base geography.</p>	<p>Sankey</p>  <p>Shows changes in flows from one condition to at least one other; good for tracing the eventual outcome of a complex process.</p>
<p>Diverging stacked bar</p>  <p>Perfect for presenting survey results which involve disagreement (eg disagree/neutral/agree).</p>	<p>Line + Column</p>  <p>A good way of showing the relationship between an amount (columns) and a rate (line).</p>	<p>Ordered column</p>  <p>See above.</p>	<p>Boxplot</p>  <p>Summarise multiple distributions by showing the median (centre) and range of the data.</p>	<p>Column</p>  <p>Columns work well for showing change over time - but usually best with only one series of data at a time.</p>	<p>Proportional stacked bar</p>  <p>A good way of showing the size and proportion of data at the same time - as long as the data are not too complicated.</p>	<p>Bar</p>  <p>See above. Good when the data are not time series and labels have long category names.</p>	<p>Proportional symbol (count/magnitude)</p>  <p>Use for totals rather than rates - be wary that small differences in data will be hard to see.</p>	<p>Waterfall</p>  <p>Designed to show the sequencing of data through a flow process, typically budgets. Can include +/- components.</p>
<p>Spine chart</p>  <p>Splits a single value into 2 contrasting components (eg Male/Female).</p>	<p>Connected scatterplot</p>  <p>Usually used to show how the relationship between 2 variables has changed over time.</p>	<p>Ordered proportional symbol</p>  <p>Use when there are big variations between values and/or seeing fine differences between data is not so important.</p>	<p>Violin plot</p>  <p>Similar to a box plot but more effective with complex distributions (data that cannot be summarised with simple average).</p>	<p>Line + column</p>  <p>A good way of showing the relationship over time between an amount (columns) and a rate (line).</p>	<p>Pie</p>  <p>A common way of showing part-to-whole data - but be aware that it's difficult to accurately compare the size of the segments.</p>	<p>Paired column</p>  <p>As per standard columns but allows for multiple series. Can become tricky to read with more than 2 series.</p>	<p>Flow map</p>  <p>For showing unambiguous movement across a map.</p>	<p>Chord</p>  <p>A complex but powerful diagram which can illustrate 2-way flows (and net winner) in a matrix.</p>
<p>Surplus/deficit filled line</p>  <p>The shaded area of these charts allows a balance to be shown - either against a baseline or between two series.</p>	<p>Bubble</p>  <p>Like a scatterplot, but adds additional detail by sizing the circles according to a third variable.</p>	<p>Dot strip plot</p>  <p>Dots placed in order on a strip are a space-efficient method of laying out ranks across multiple categories.</p>	<p>Population pyramid</p>  <p>A standard way for showing the age and sex breakdown of a population distribution; data that cannot be summarised with simple average).</p>	<p>Stack price</p>  <p>Usually focused on showing opening/closing and high/low points of each day.</p>	<p>Donut</p>  <p>Similar to a pie chart - but the centre can be a good way of making space to include more information about the data (eg. totals).</p>	<p>Paired bar</p>  <p>See above.</p>	<p>Contour map</p>  <p>For showing areas of equal value on a map. Can use deviation colour schemes for showing +/- values.</p>	<p>Network</p>  <p>Used for showing the strength and inter-connectness of relationships of varying types.</p>
	<p>XY heatmap</p>  <p>A good way of showing the patterns between 2 categories of data, less good at showing fine differences in amounts.</p>	<p>Slope</p>  <p>Perfect for showing how ranks have changed over time or vary between categories.</p>	<p>Dot plot</p>  <p>Good for showing individual values in a distribution, can be a problem when too many dots have the same value.</p>	<p>Slope</p>  <p>Good for showing changing data as long as the data can be simplified into 2 or 3 points without missing a key part of story.</p>	<p>Treemap</p>  <p>Use for hierarchical part-to-whole relationships, can be difficult to read when there are many small segments.</p>	<p>Proportional stacked bar</p>  <p>A good way of showing the size and proportion of data at the same time - as long as the data are not too complicated.</p>	<p>Equalised cartogram</p>  <p>Converting each unit on a map to a regular and equally-sized shape - good for representing voting regions with equal value.</p>	
		<p>Lollipop chart</p>  <p>Lollipops draw more attention to the data value than standard bar/column and can also show rank and value effectively.</p>	<p>Barcode plot</p>  <p>Like dot strip plots, good for displaying all the data in a table. They work best when highlighting individual values.</p>	<p>Area chart</p>  <p>Use with care - these are good at showing changes to total, but seeing change in components can be very difficult.</p>	<p>Voronoi</p>  <p>A way of turning points into areas - any point within each area is closer to the central point than any other centroid.</p>	<p>Proportional symbol</p>  <p>Use when there are big variations between values and/or seeing fine differences between data is not so important.</p>	<p>Scaled cartogram (value)</p>  <p>Stretching and shrinking a map so that each area is sized according to a particular value.</p>	
			<p>Cumulative curve</p>  <p>A good way of showing how unequal a distribution is, y axis is always cumulative frequency, x axis is always a measure.</p>	<p>Fan chart (projections)</p>  <p>Use to show the visualising hierarchical part-to-whole relationships. Use sparingly (if at all) for obvious reasons.</p>	<p>Sunburst</p>  <p>Another way of visualising hierarchical part-to-whole relationships. Use sparingly (if at all) for obvious reasons.</p>	<p>Isotype (pictogram)</p>  <p>Excellent solution in some instances - use only with whole numbers (do not slice off an arm to represent a decimal).</p>	<p>Dot density</p>  <p>Used to show the location of individual events/locations - make sure to annotate any patterns the reader should see.</p>	
				<p>Calendar heatmap</p>  <p>A great way of showing temporal patterns (daily, weekly, monthly) - at the expense of showing precision in quantity.</p>	<p>Arc</p>  <p>A hemicycle, often used for visualising political results in parliaments.</p>	<p>Lollipop chart</p>  <p>Lollipop charts draw more attention to the data value than standard bar/column - does not HAVE to start at zero (but preferable).</p>	<p>Heat map</p>  <p>Grid-based data values mapped with an intensity colour scale. As choropleth map - but not snapped to an administrative unit.</p>	
				<p>Priestley timeline</p>  <p>Great when date and duration are key elements of the story in the data.</p>	<p>Gridplot</p>  <p>Good for showing % information, they work best when used on whole numbers and work well in multiple layout form.</p>	<p>Radar chart</p>  <p>A space-efficient way of showing value of multiple variables - but make sure they are organised in a way that makes sense to reader.</p>		
				<p>Circle timeline</p>  <p>Good for showing discrete values of varying size across multiple categories (eg earthquakes by continent).</p>	<p>Venn</p>  <p>Generally only used for schematic representation.</p>	<p>Parallel coordinates</p>  <p>An alternative to radar charts - again, the arrangement of the variables is important. Usually benefits from highlighting values.</p>		
				<p>Seismogram</p>  <p>Another alternative to the circle timeline for showing series where there are big variations in the data.</p>	<p>Waterfall</p>  <p>Can be useful for showing part-to-whole relationships where some of the components are negative.</p>			

Visual vocabulary

Designing with data

There are so many ways to visualise data - how do we know which one to pick? Use the categories across the top to decide which data relationship is most important in your story, then look at the different types of chart within the category to form some initial ideas about what might work best. This list is not meant to be exhaustive, nor a wizard, but is a useful starting point for making informative and meaningful data visualisations.

FT graphic: Alan Smith; Chris Campbell; Ian Bott; Liz Faunce; Graham Parrish; Billy Ehrenberg; Paul McCallum; Martin Stabe
Inspired by the Graphic Continuum by Jon Schwabish and Severino Ribeca

[ft.com/vocabulary](https://www.ft.com/vocabulary)



Search by Function

View by List



Arc Diagram



Area Graph



Bar Chart



Box & Whisker Plot



Brainstorm



Bubble Chart



Calendar



Chord Diagram



Choropleth Map



Circle Packing



Donut Chart



Dot Matrix Chart



Flow Map



Histogram



Illustration Diagram



Line Graph



Marimekko Chart



Multi-set Bar Chart



Nightingale Rose Chart



Non-ribbon Chord Diagram



Parallel Sets



Pictogram Chart



Pie Chart



Population Pyramid



Proportional Area Chart



Radar Chart



Radial Bar Chart



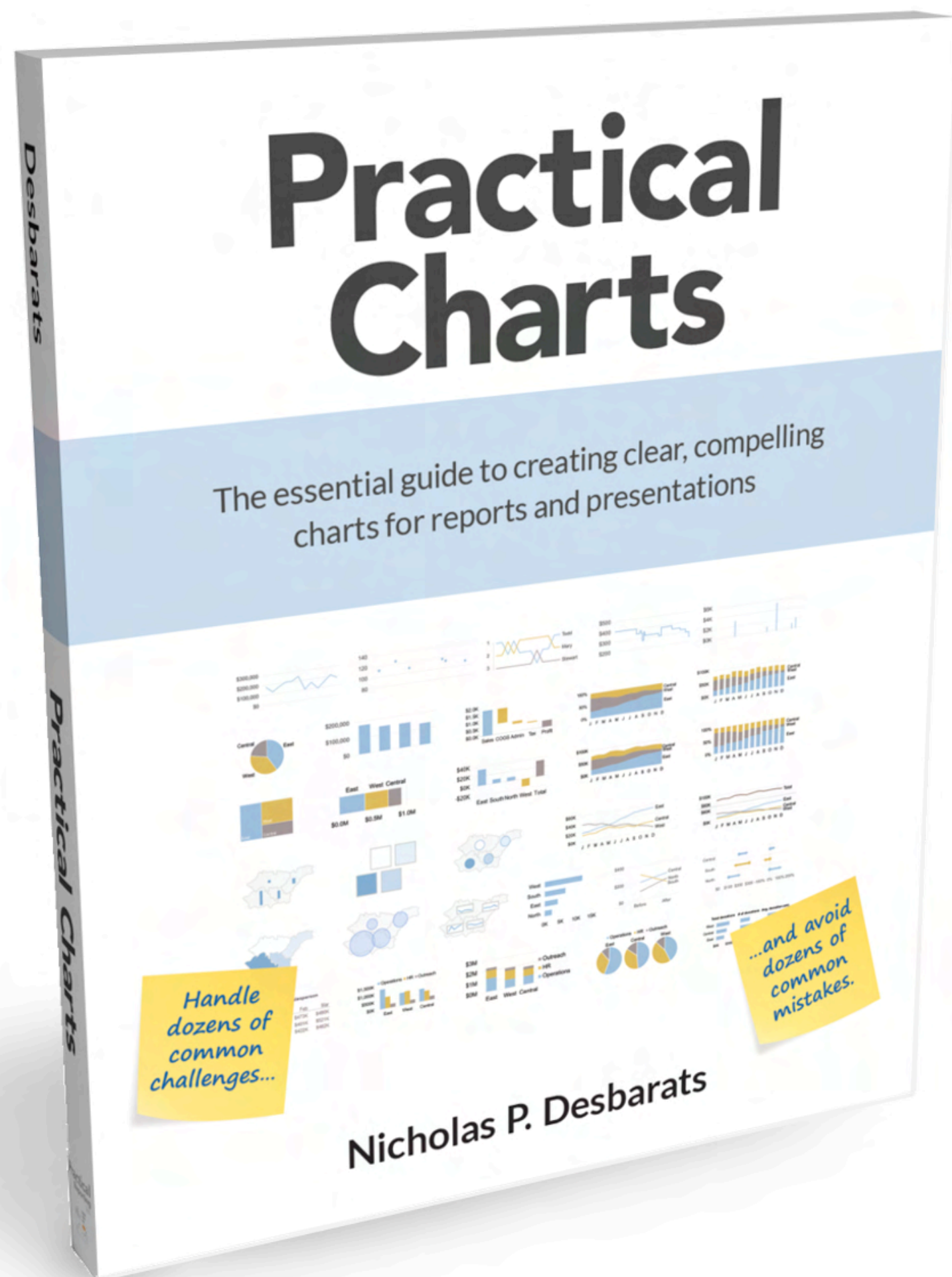
Sankey Diagram



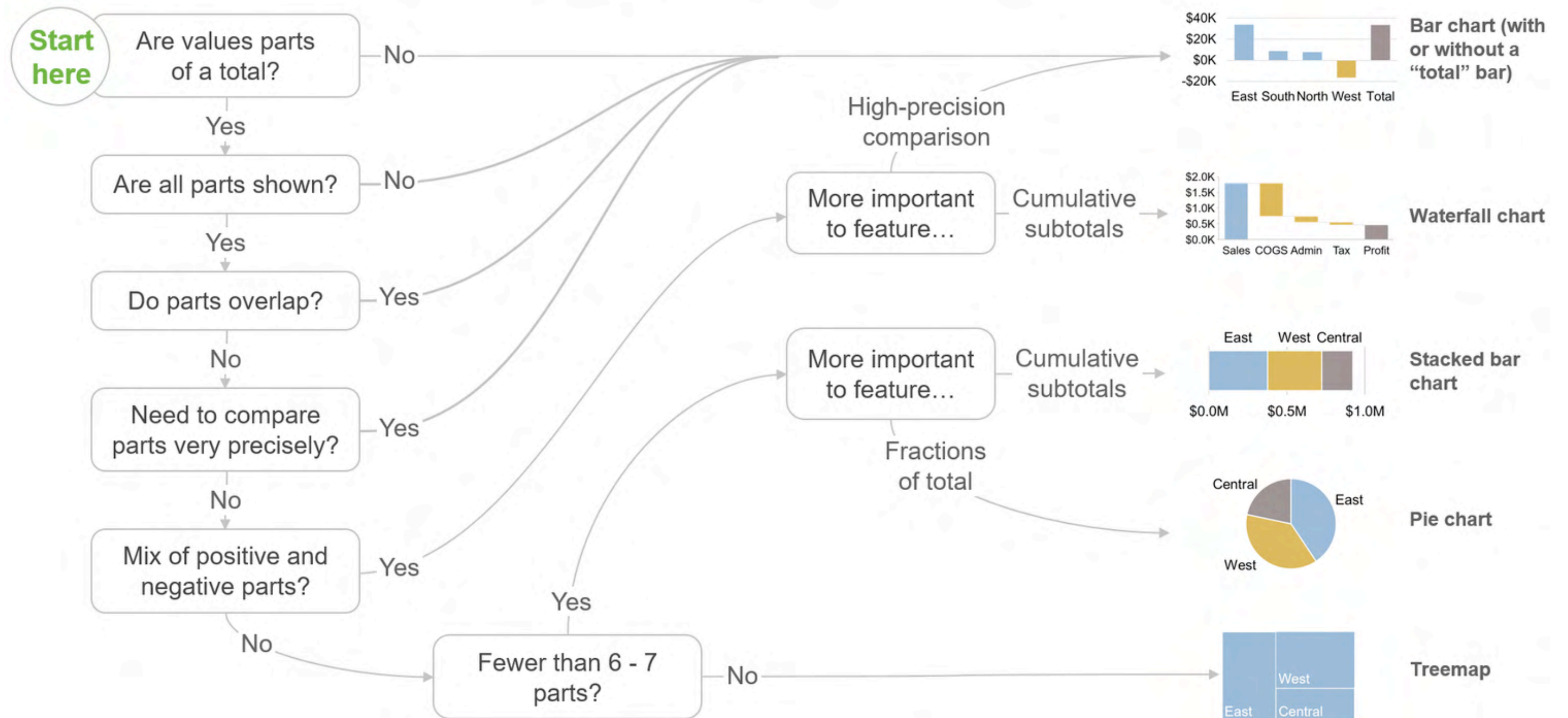
Scatterplot



Span Chart



Choosing a chart type to show the breakdown of a total



<https://www.practicalreporting.com/practical-charts-book>



 CRC Press
Taylor & Francis Group
AN A K PETERS BOOK

A K Peters Visualization Series

Visualization Analysis & Design

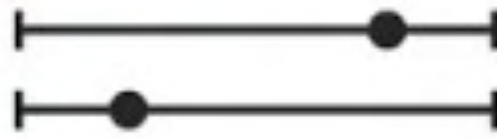
Tamara Munzner

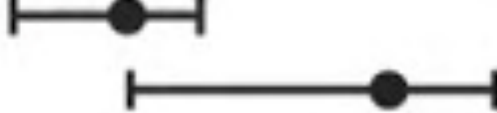
WITH VITALSOURCE®
EBOOK 

Illustrations by Eamonn Maguire

Encodings/channels hierarchy from Tamara Munzner's *Visualization Analysis and Design* (2014)

➔ **Magnitude Channels: Ordered Attributes**

Position on common scale 

Position on unaligned scale 

Length (1D size) 

Tilt/angle 

Area (2D size) 

Depth (3D position) 

Color luminance 

Color saturation 

Curvature 

Volume (3D size) 


➔ **Identity Channels: Categorical Attributes**

Spatial region 

Color hue 

Motion 

Shape 

- expressiveness 
 - match channel and data characteristics
- effectiveness
 - channels differ in accuracy of perception

- Hereditary cancer syndromes are the exception

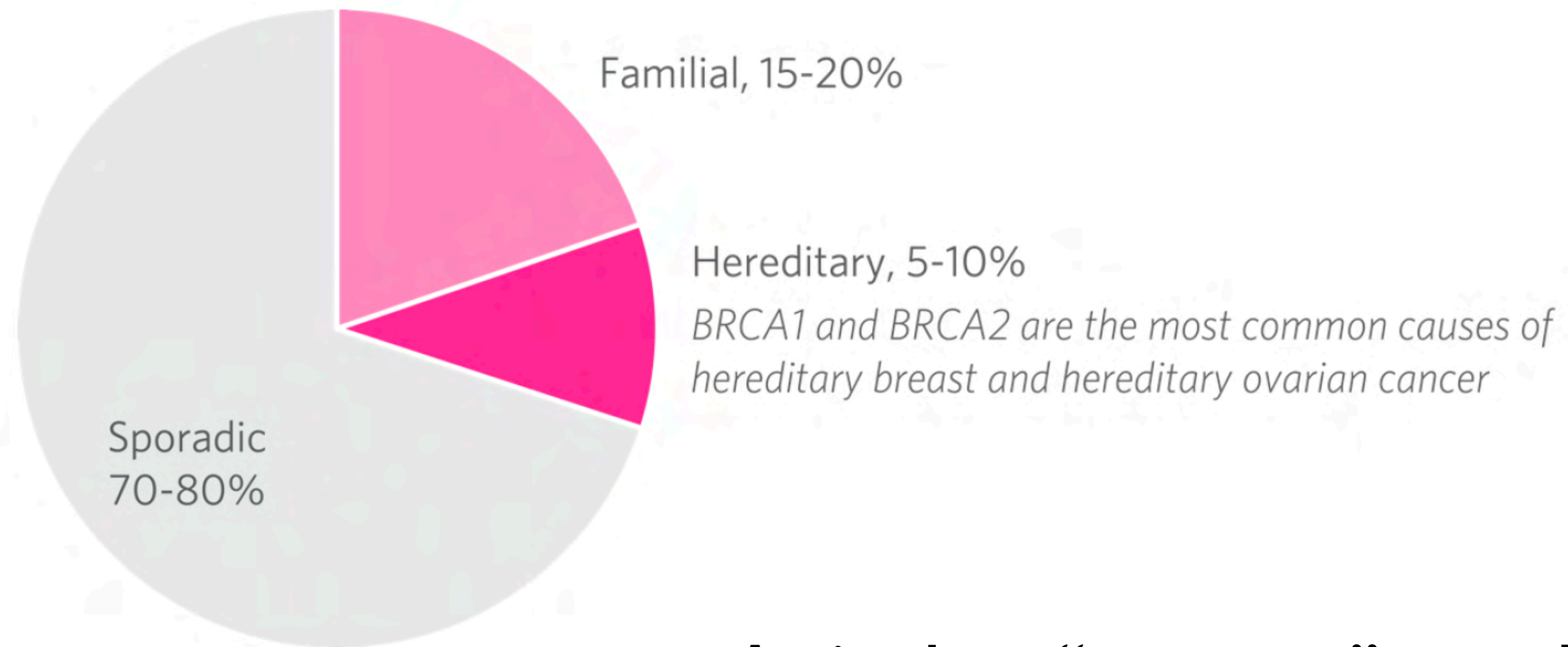
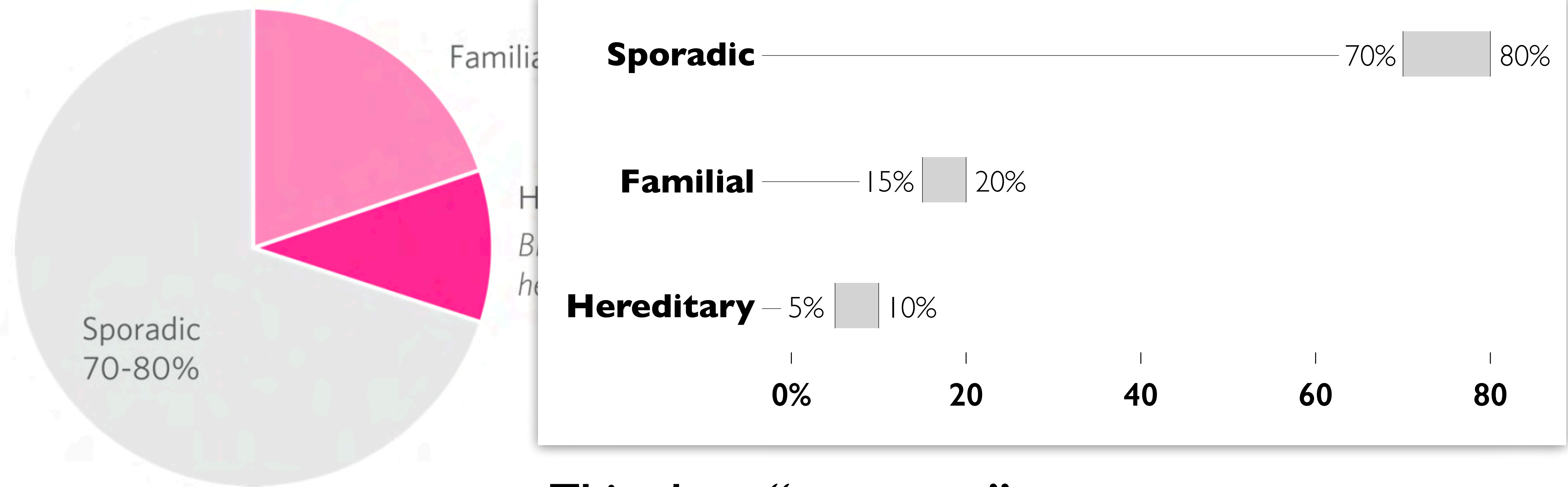


Chart by Ceres Fernández

A pie chart “expresses” a total and its parts


○ Hereditary cancer syndromes are the exception




This chart “expresses” ranges

Encodings/channels hierarchy from Tamara Munzner's *Visualization Analysis and Design* (2014)

➔ **Magnitude Channels: Ordered Attributes**

Position on common scale 

Position on unaligned scale 

Length (1D size) 

Tilt/angle 

Area (2D size) 

Depth (3D position) 

Color luminance 

Color saturation 

Curvature 

Volume (3D size) 


➔ **Identity Channels: Categorical Attributes**

Spatial region 

Color hue 

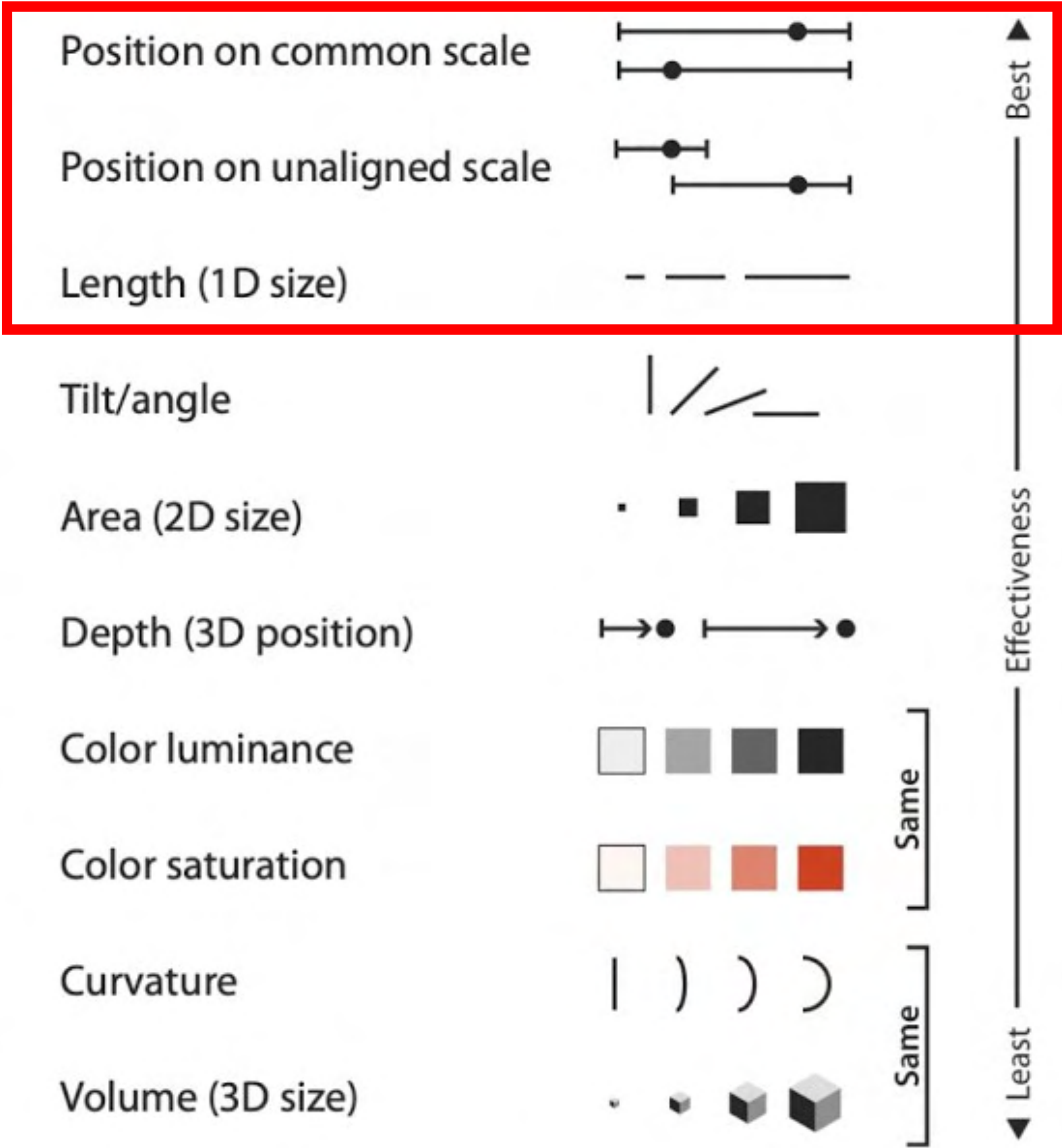
Motion 

Shape 

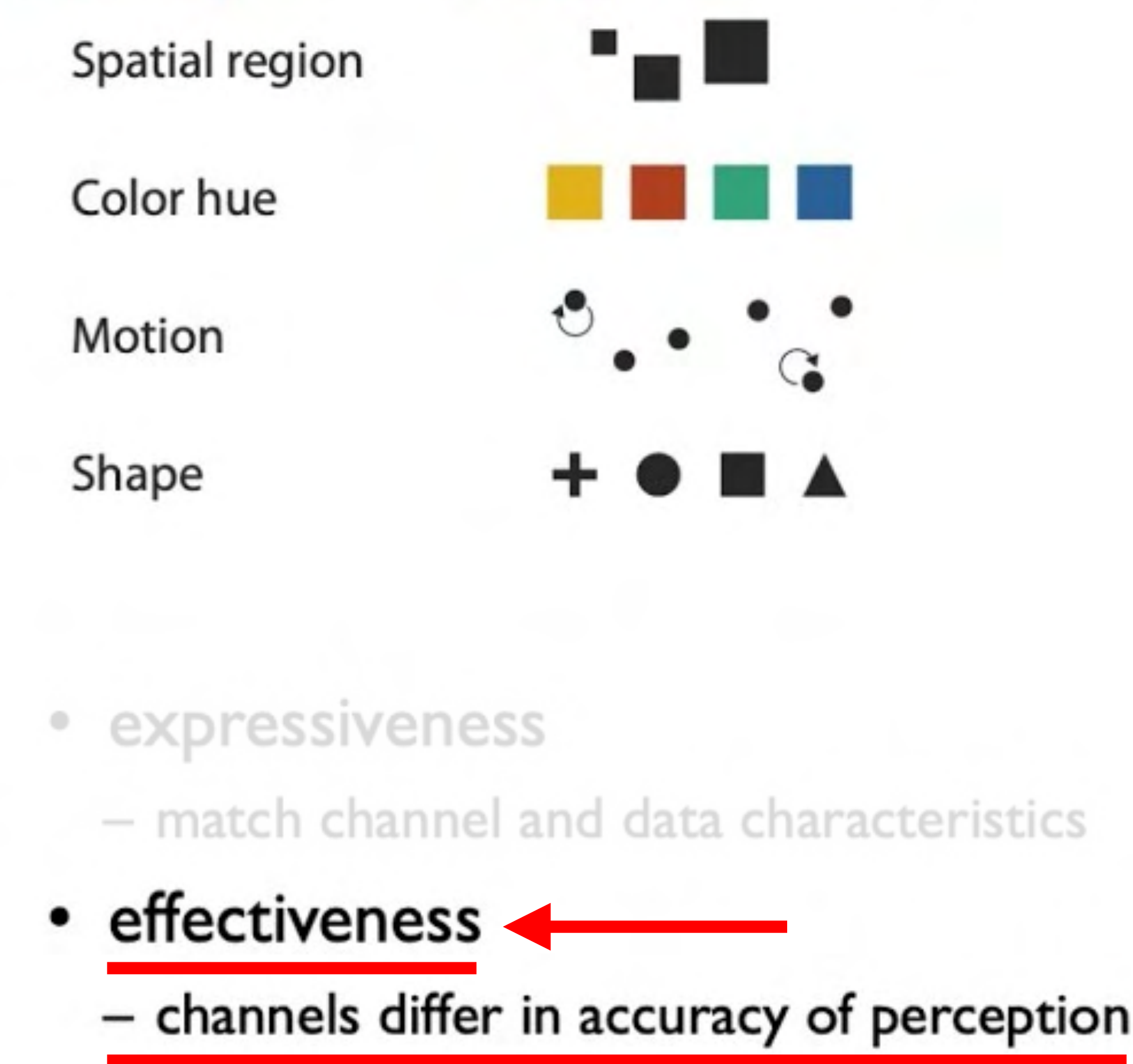
- expressiveness
 - match channel and data characteristics
- effectiveness 
 - channels differ in accuracy of perception

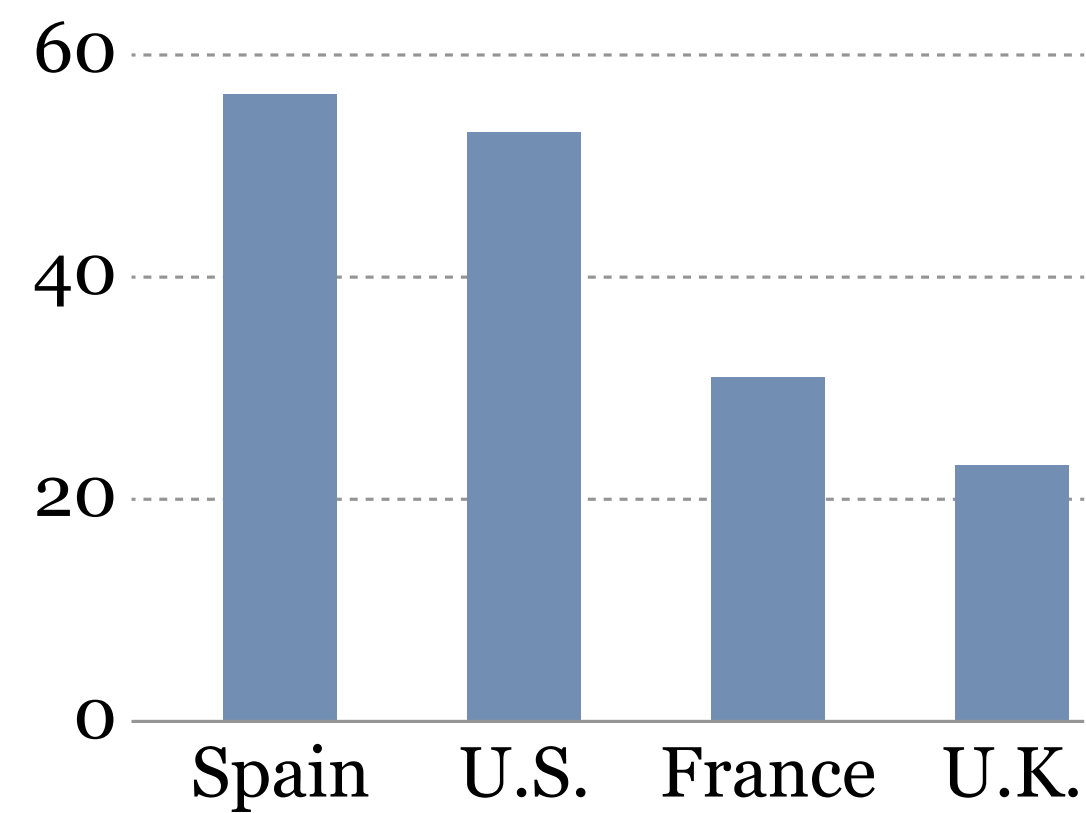
Encodings/channels hierarchy from Tamara Munzner's *Visualization Analysis and Design* (2014)

➔ Magnitude Channels: Ordered Attributes

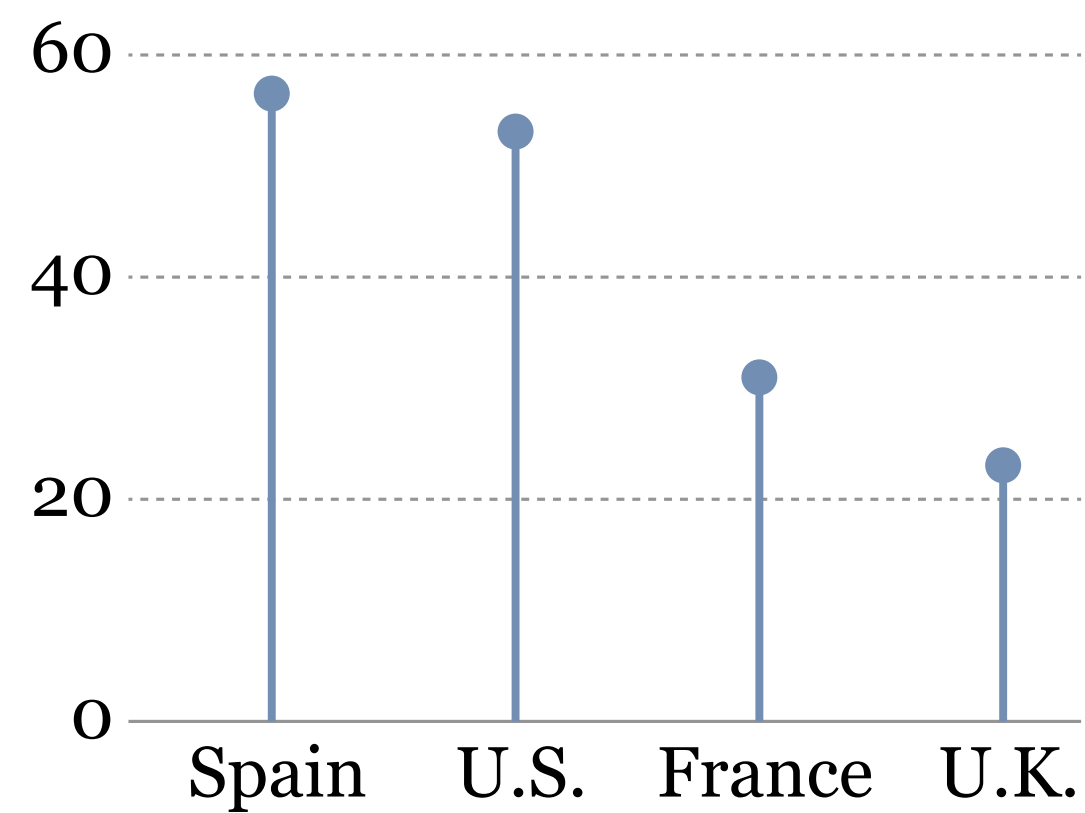


➔ Identity Channels: Categorical Attributes

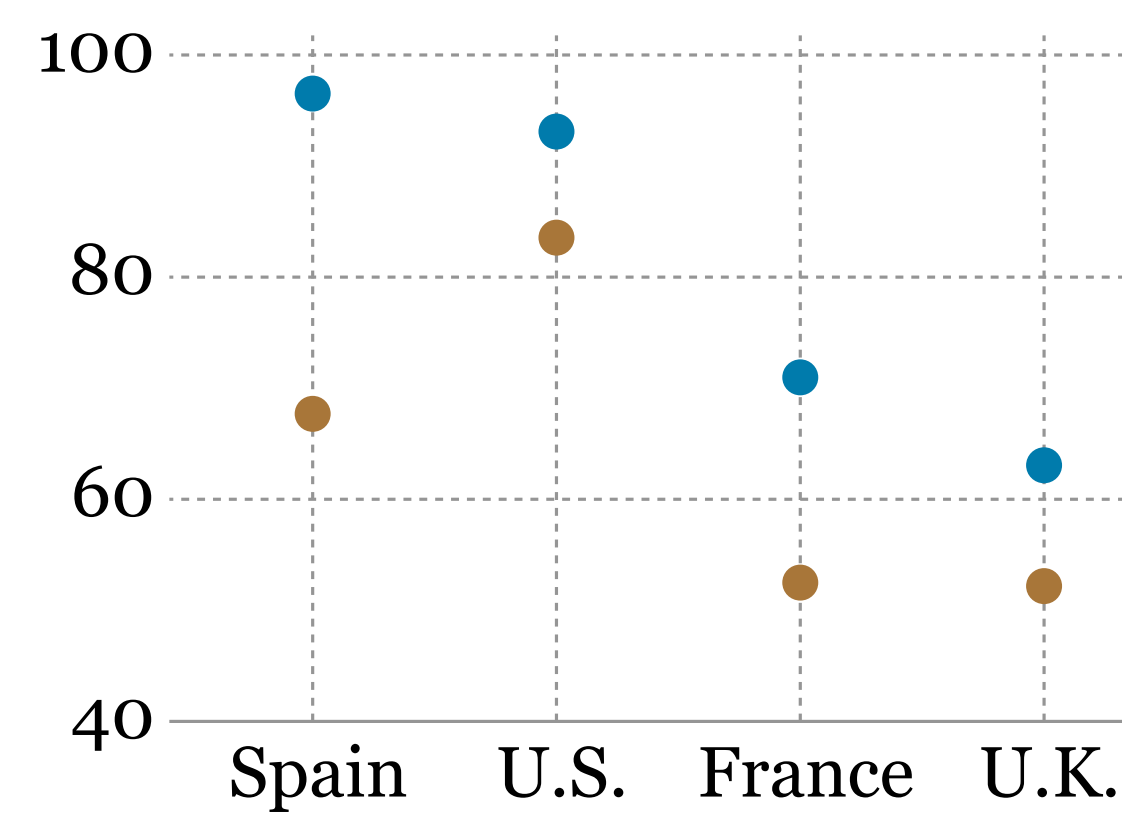




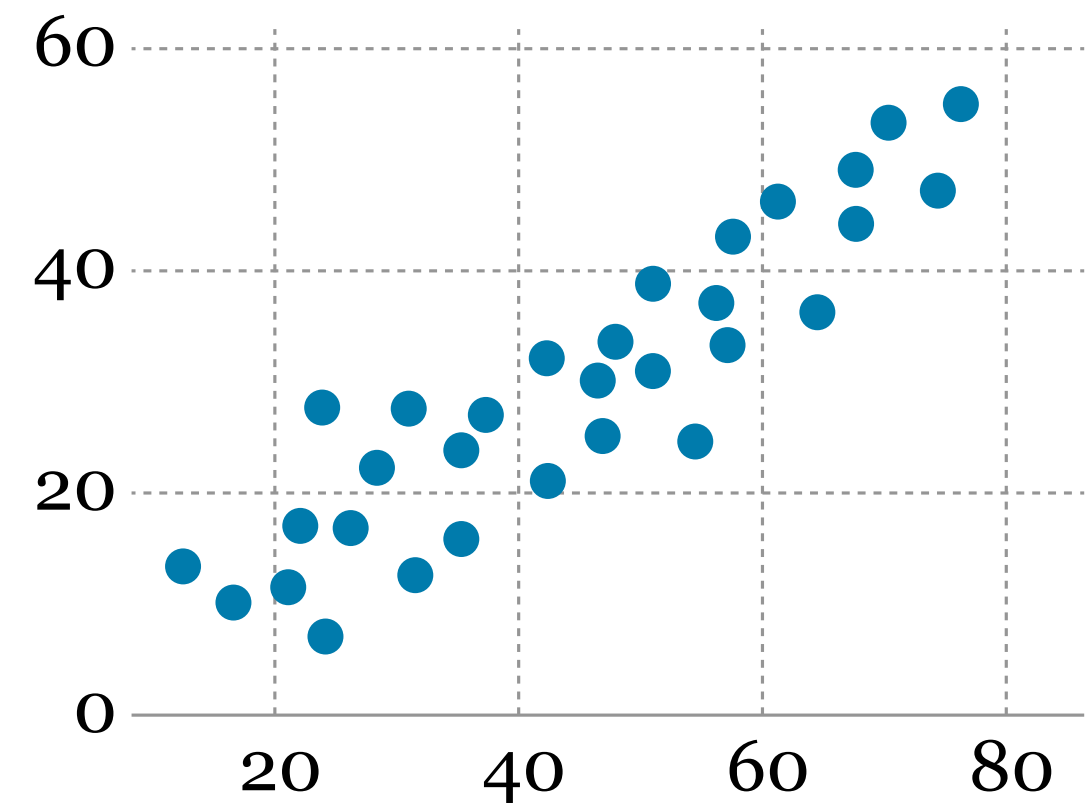
BAR CHART



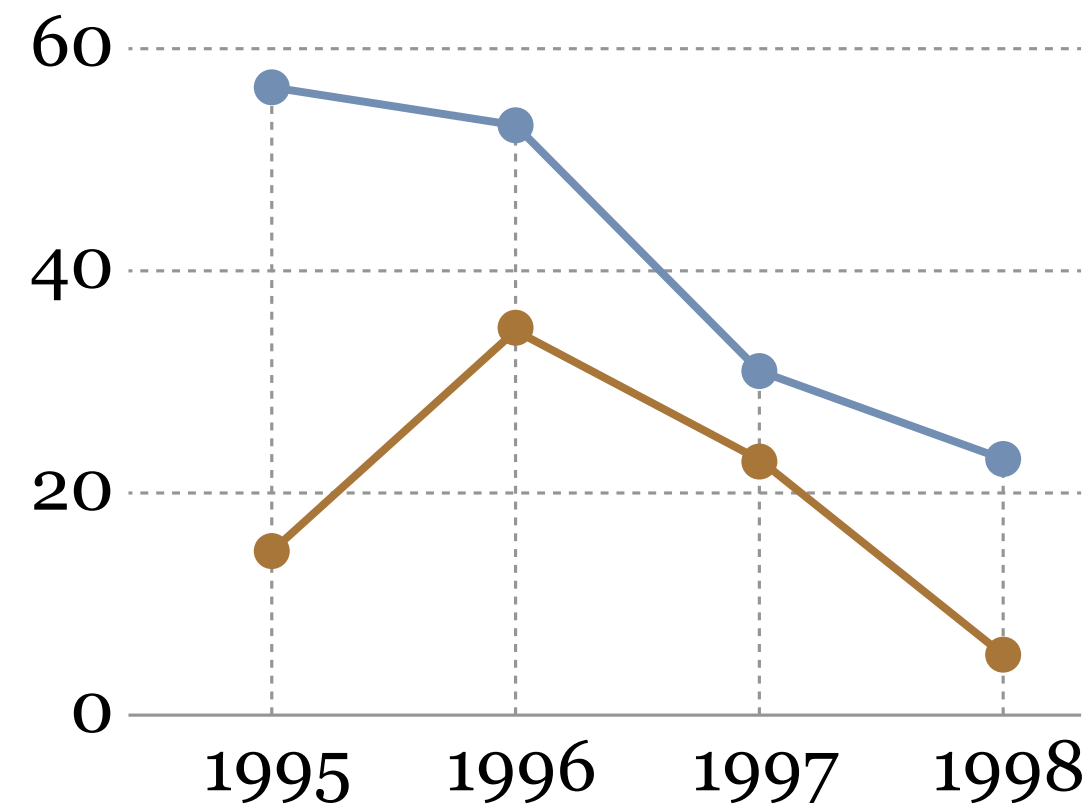
LOLLIPOP CHART



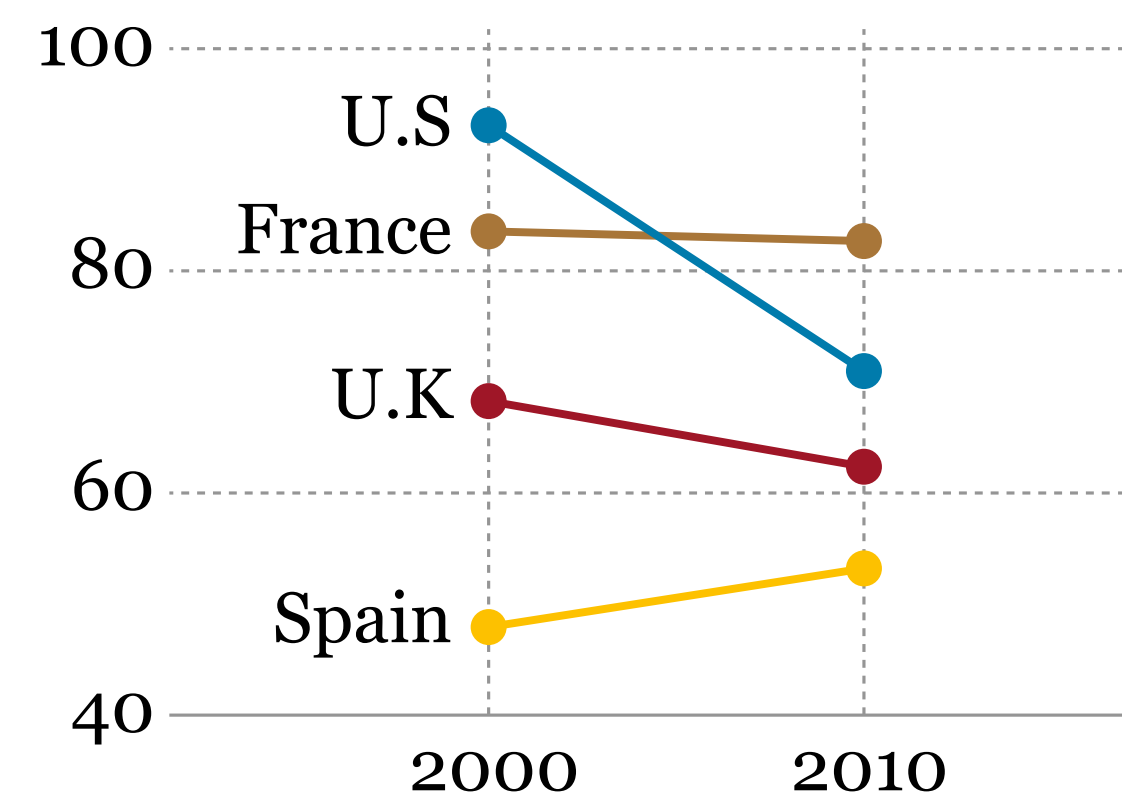
**DOT CHART
(or dot plot)**



**SCATTER CHART
(or scatter plot)**



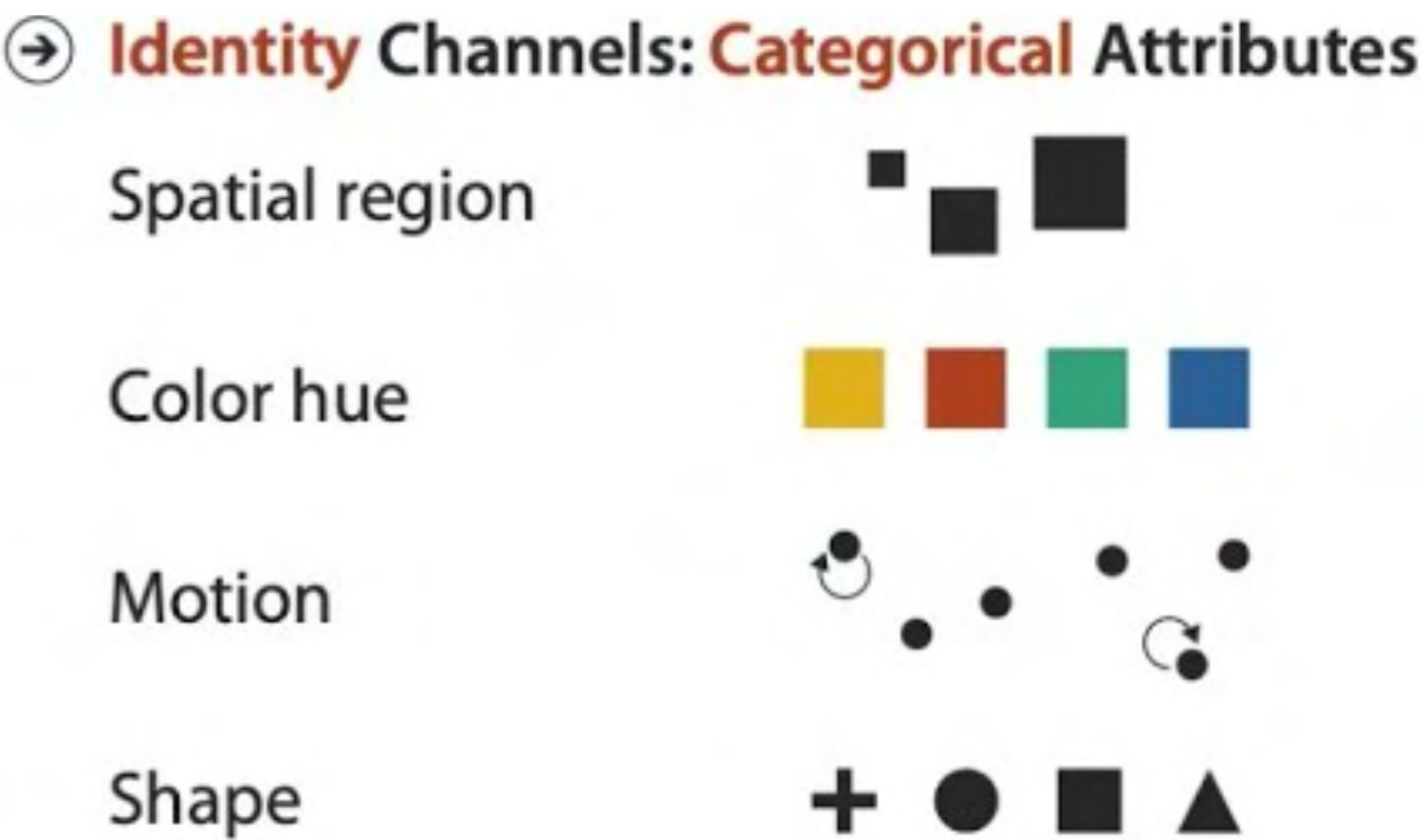
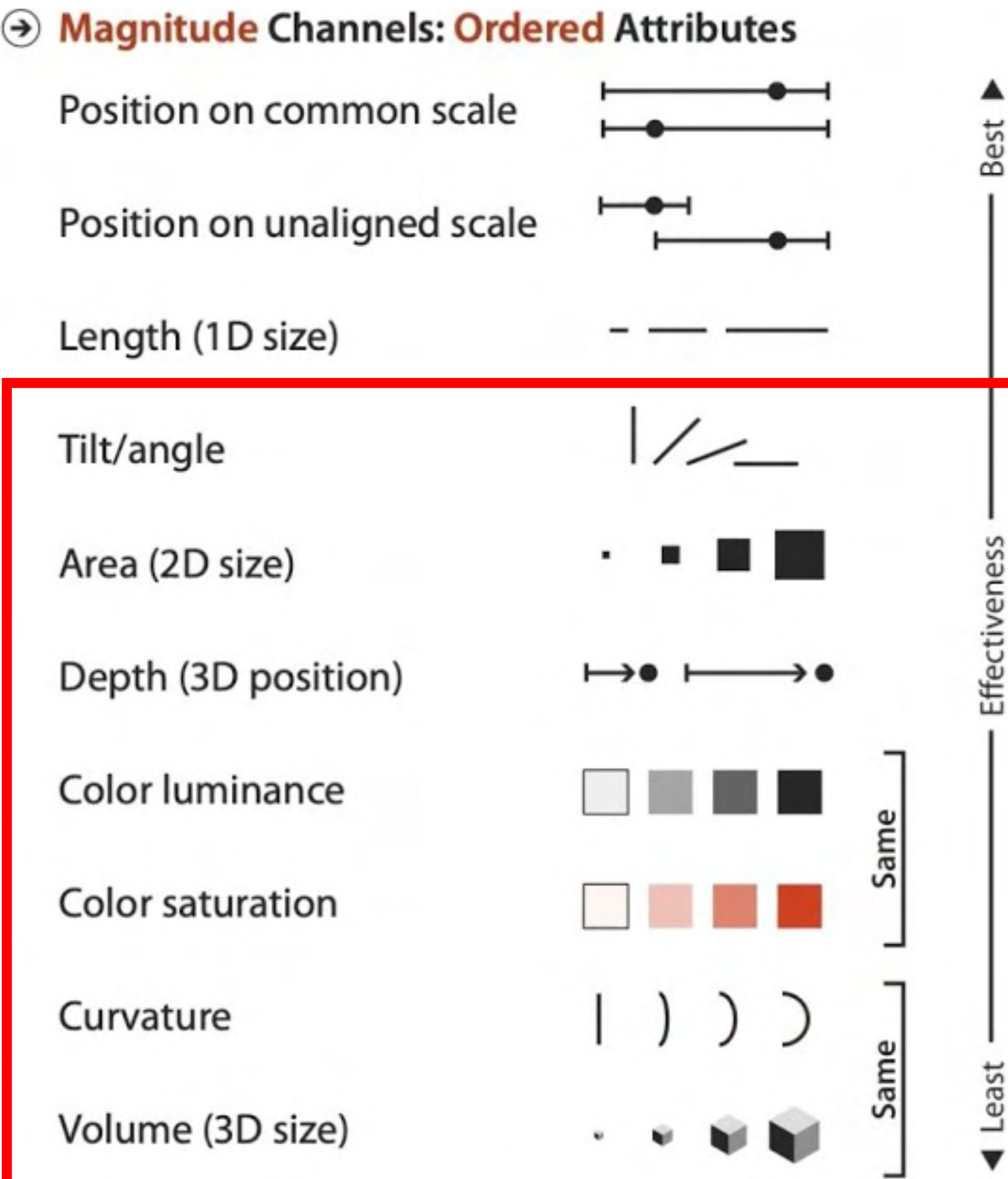
**LINE CHART
(or time series chart)**



SLOPE CHART

Height, length, position are appropriate encodings
to help readers make accurate estimates

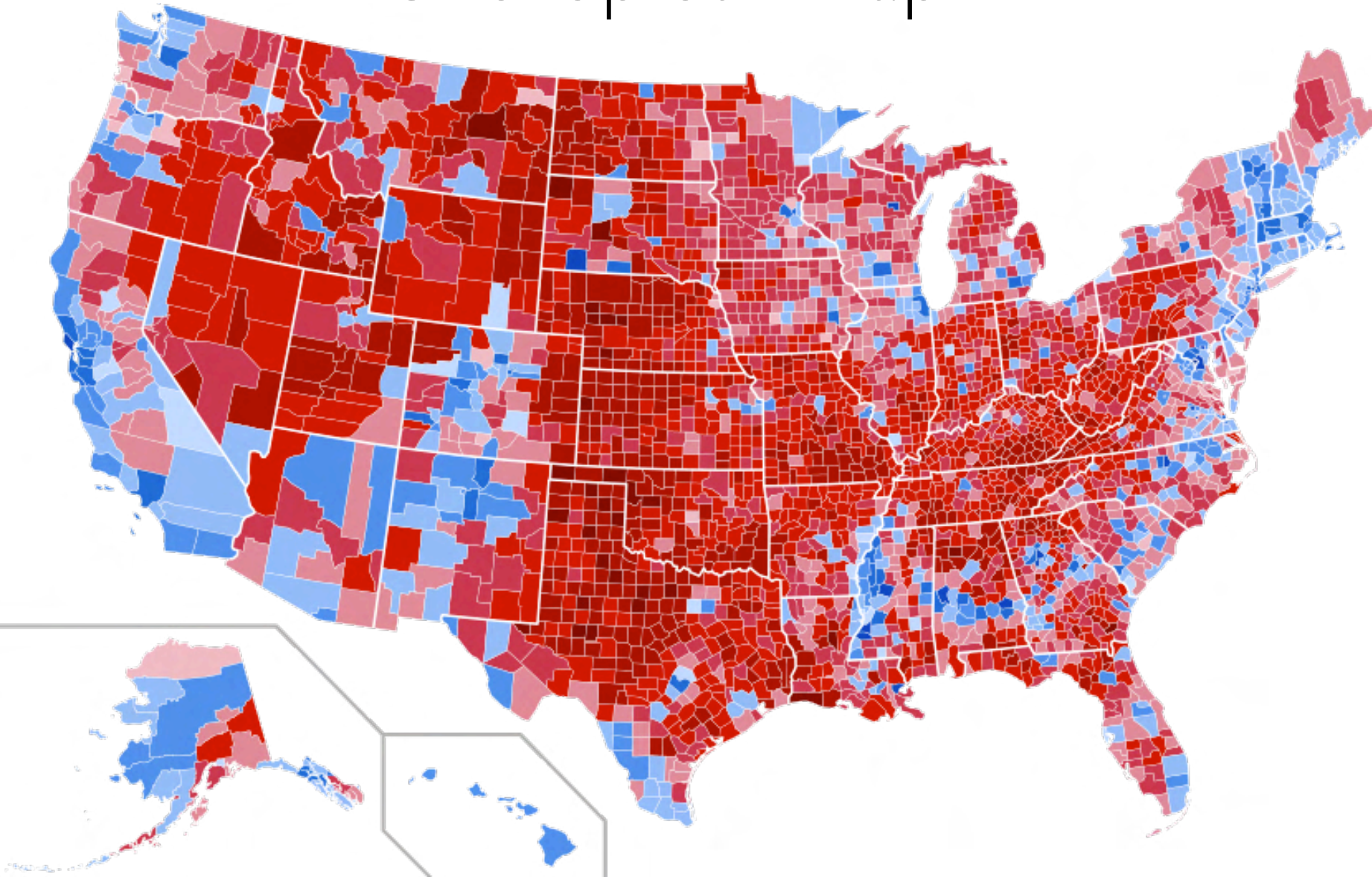
Encodings/channels hierarchy from Tamara Munzner's *Visualization Analysis and Design* (2014)



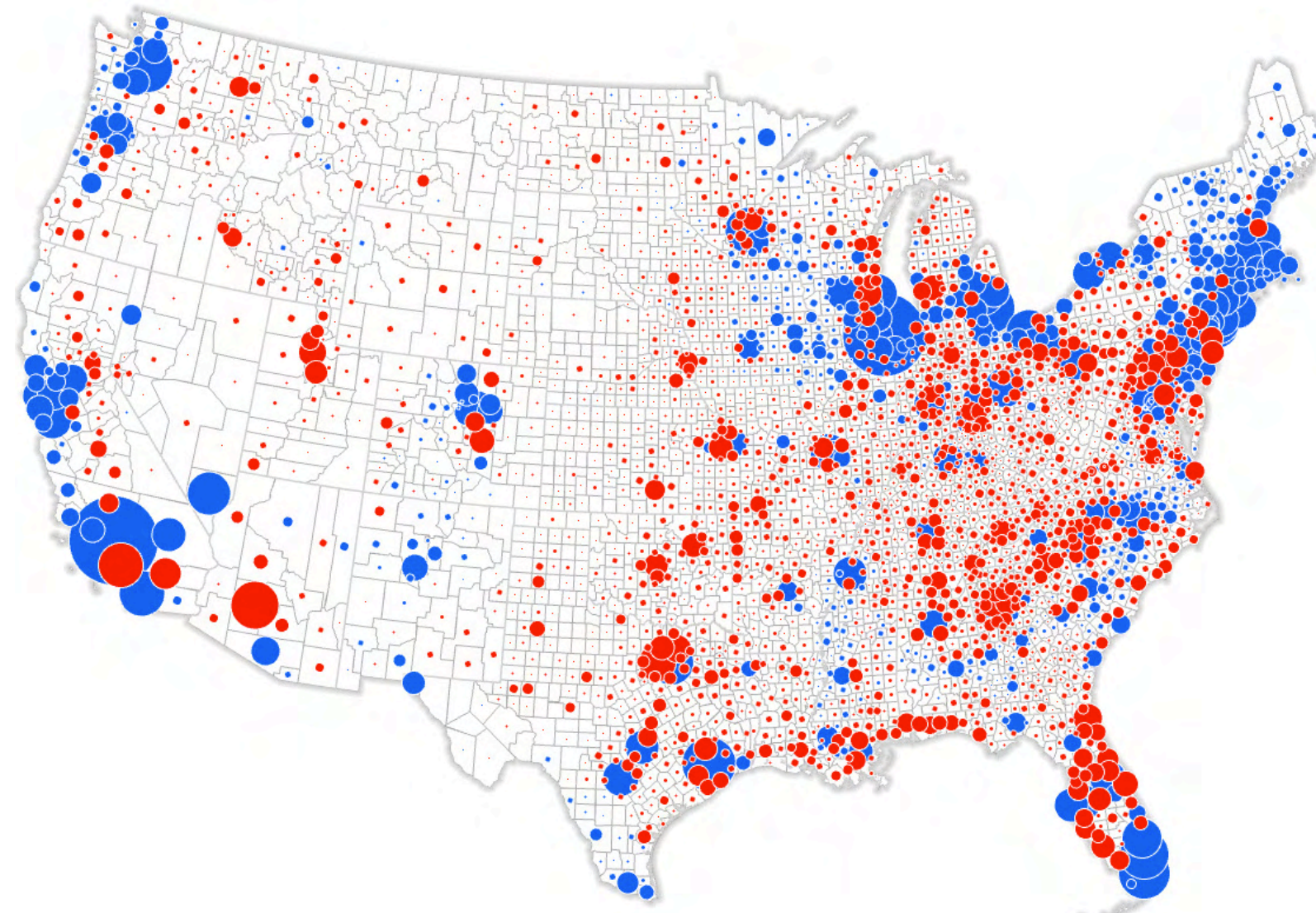
- expressiveness
 - match channel and data characteristics
- effectiveness
 - channels differ in accuracy of perception

A visual channel can be “effective” in the non-technical sense of the term because, in many cases, high accuracy of perception isn’t the goal.

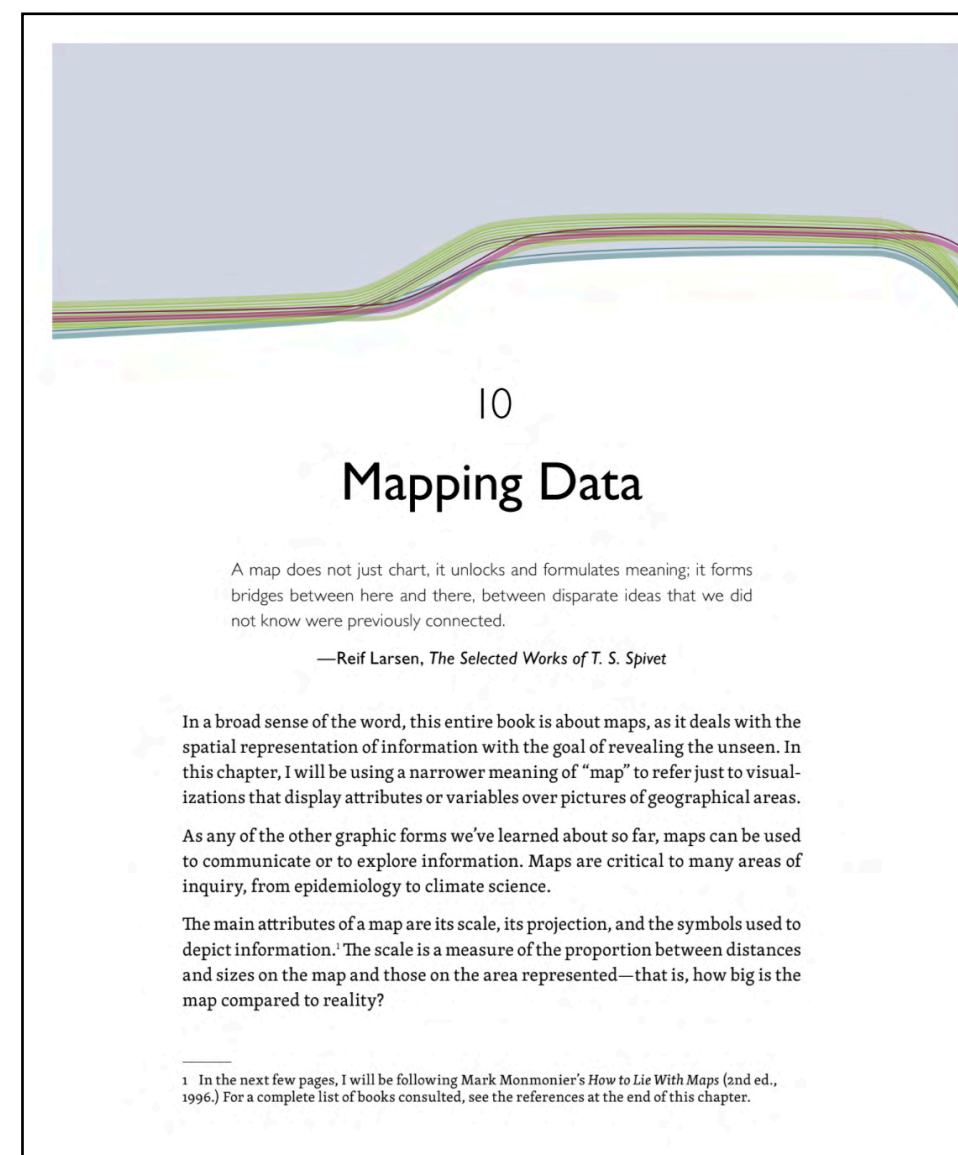
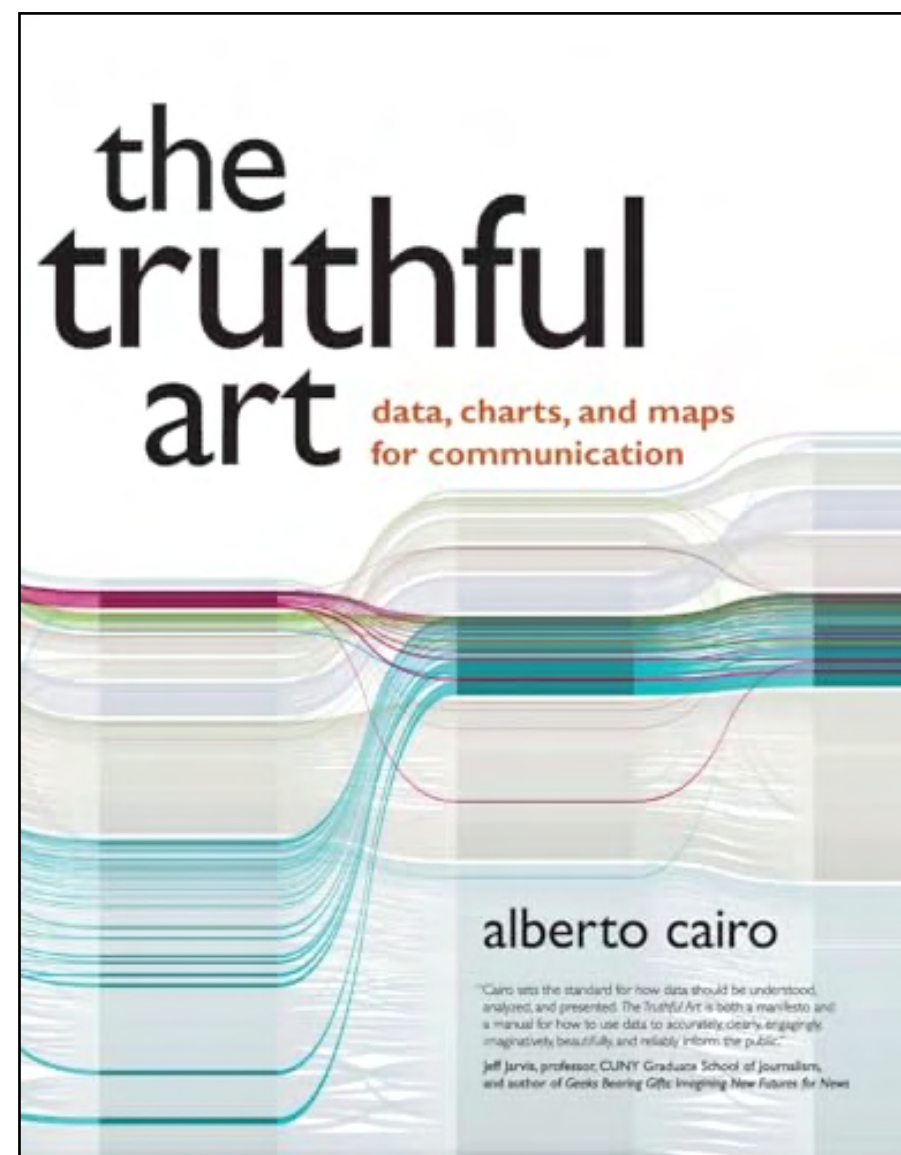
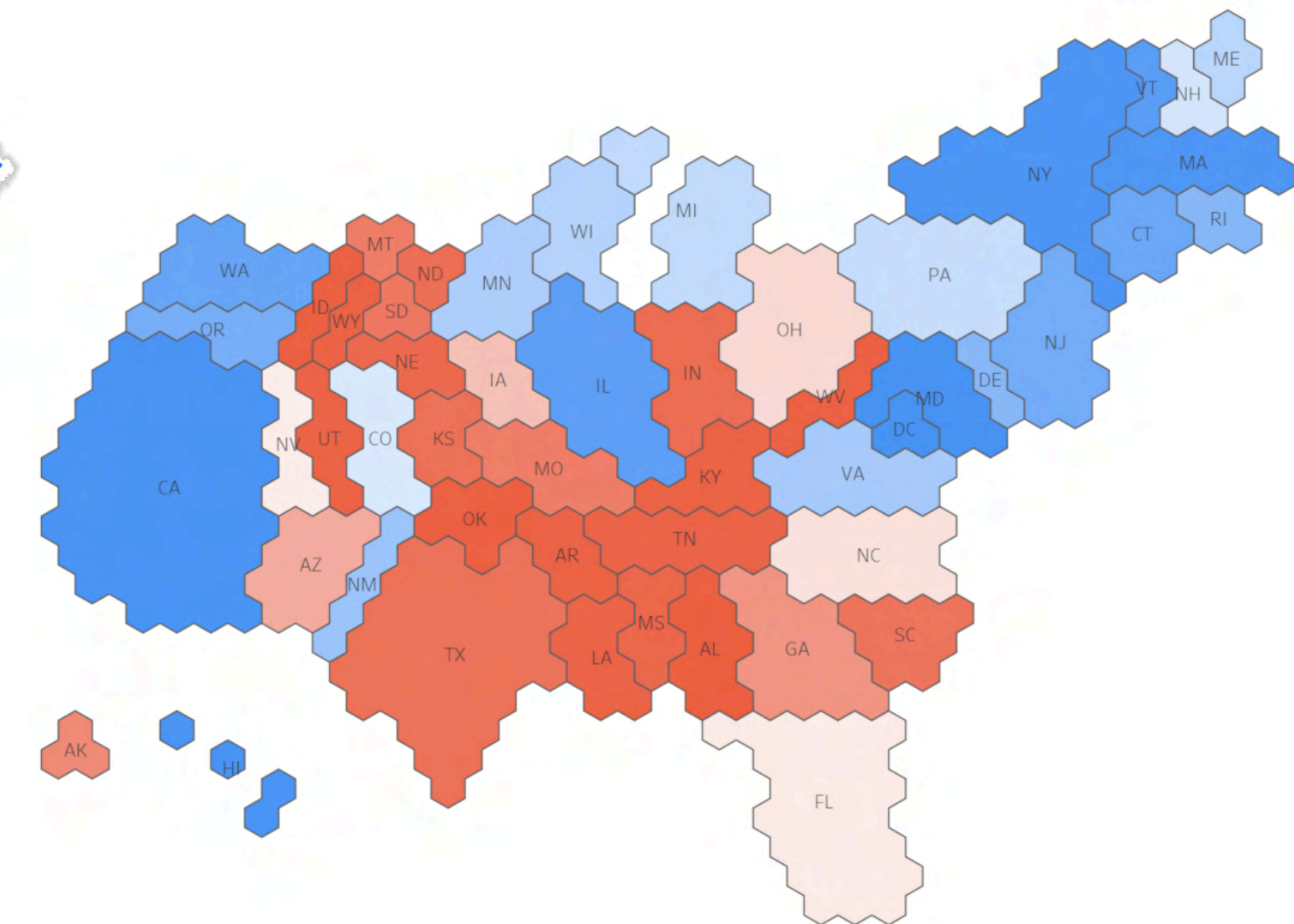
Choropleth map



Proportional symbol map



Cartogram



Chapter 10 of *The Truthful Art*

<https://drive.google.com/file/d/1Ap4ehrBDXBSDPcnPXCTeg9cVHIU9kOeX/>

Truck Sales Slip, Tripping Up Chrysler

Over the past few years, Chrysler executives said they were following the lead of Toyota and Honda, focusing on vehicles that met the needs of their customers. But as American consumers turned away from large trucks and S.U.V.'s in 2006, Chrysler continued to churn out big vehicles, which are now sitting unsold at dealerships across the country.

Chrysler Group **-7.0%**
Trucks/vans/S.U.V.'s 1.6 million
Cars 0.5 million

Pickups, minivans and S.U.V.'s made up 76 percent of Chrysler's sales, which left it vulnerable when consumers shifted to cars.



General Motors **-8.7%**
Trucks/vans/S.U.V.'s 2.5 million
Cars 1.6 million

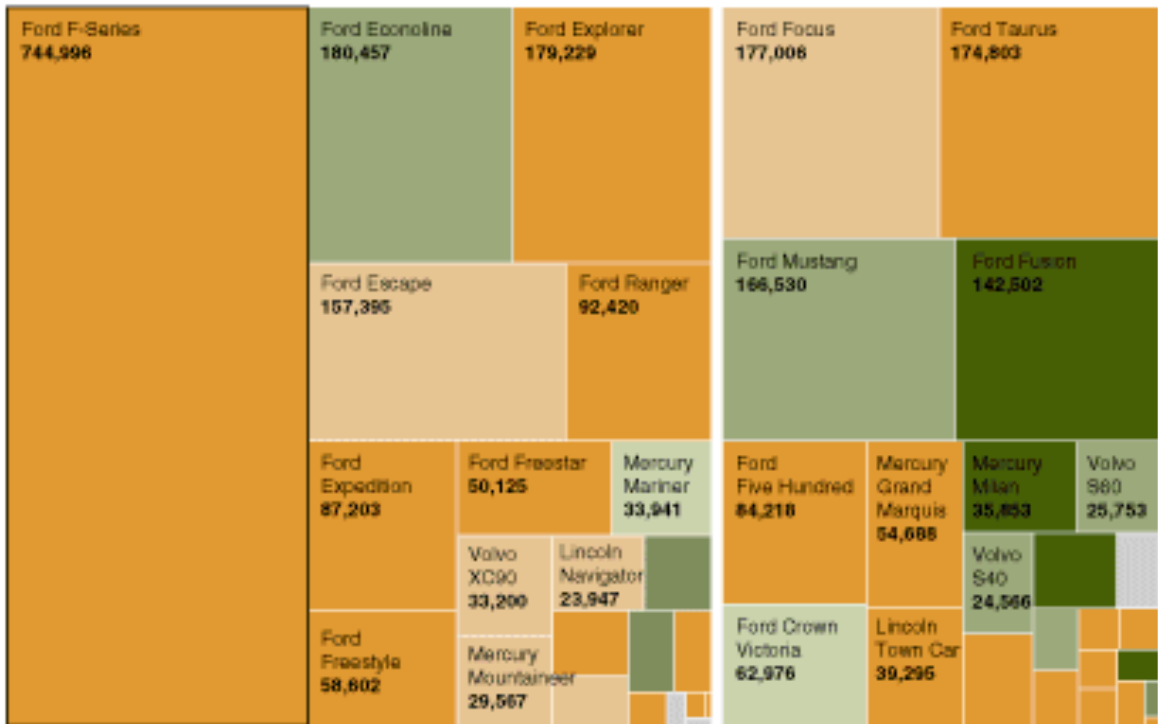
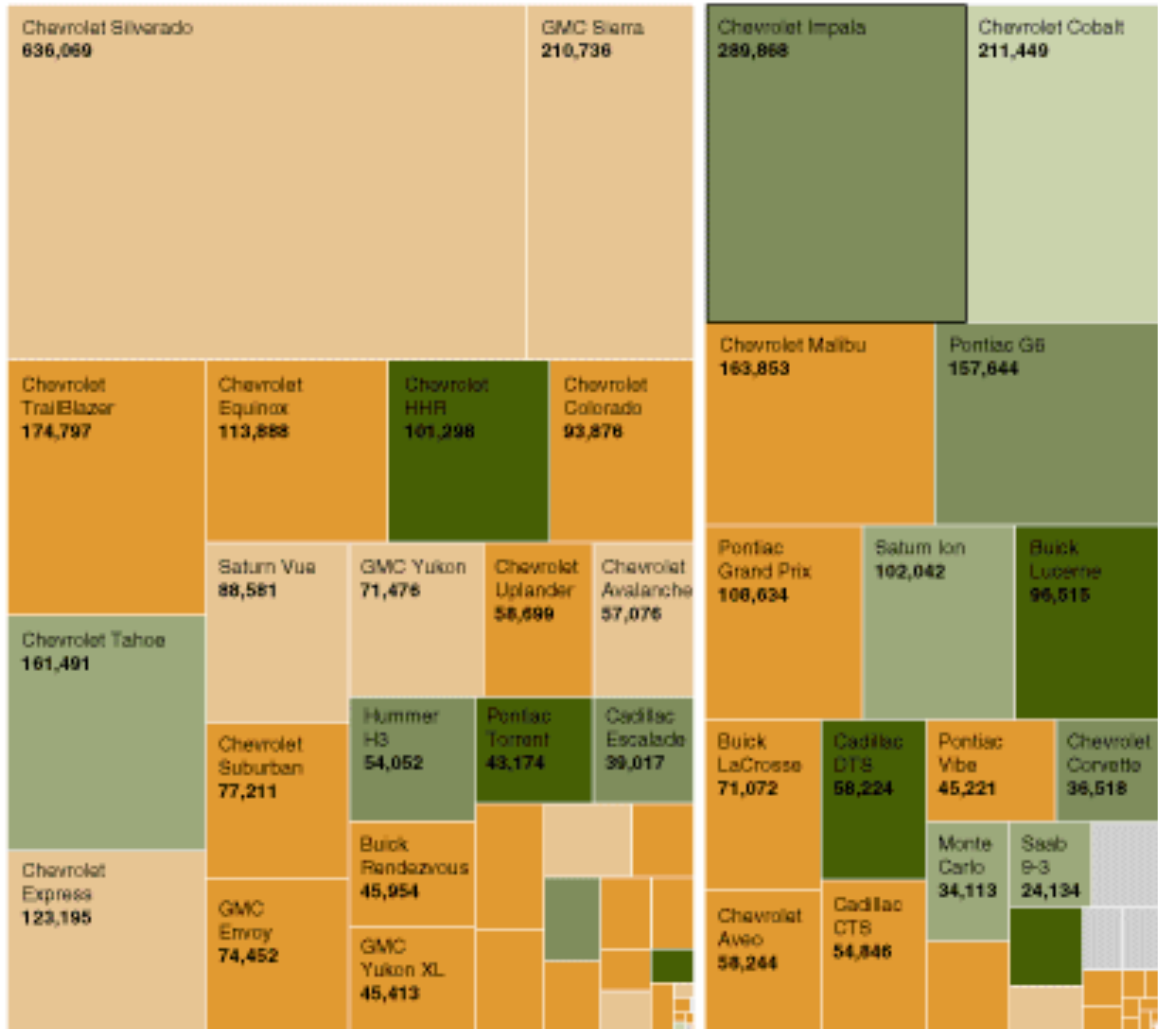
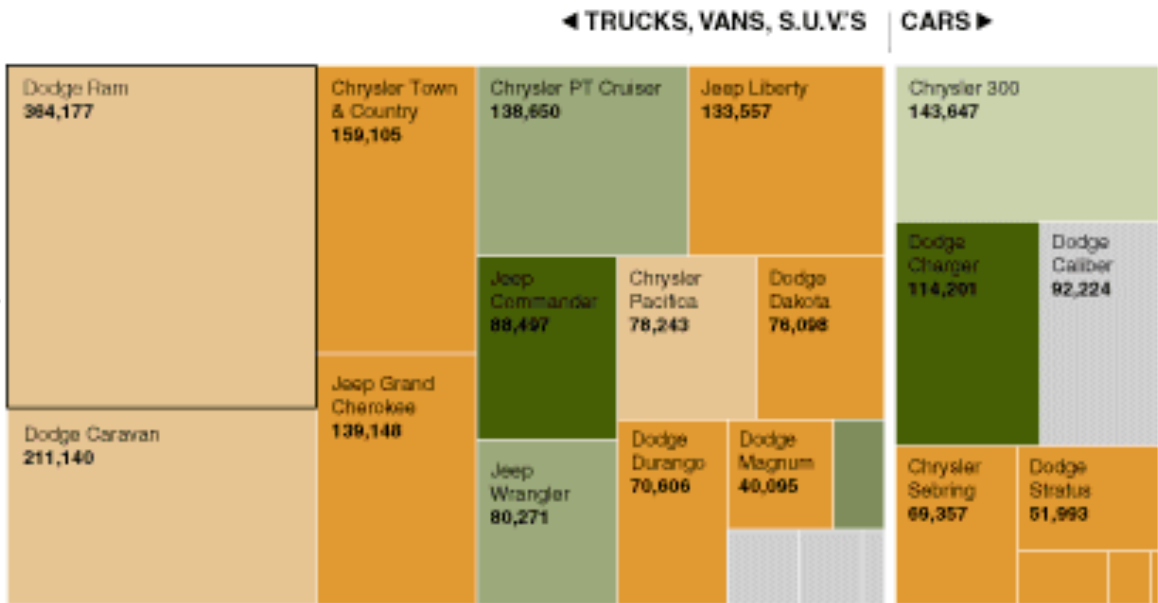
G.M. introduced new versions of its large S.U.V.'s in late 2005, hoping they would bolster sales. Instead, sales of big vehicles were hurt when gas prices climbed. One of the few standouts was the Chevrolet HHR, new in 2005.



The Chevrolet Impala, with or without flashing lights, did well in 2006, when a redesign came out.

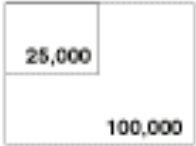
Ford **-8.3%**
Trucks/vans/S.U.V.'s 1.8 million
Cars 1.1 million

Even the country's best-selling vehicles, the F-Series, slumped in 2006, with sales dropping 13 percent. One of Ford's bright spots was the new Fusion sedan, which made its debut in late 2005 and sold well in its first full year.

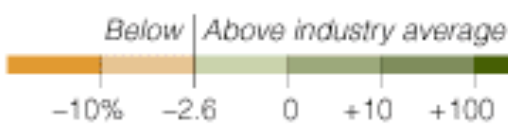


READING THE CHART

Boxes are scaled proportionally according to number of cars sold in 2006

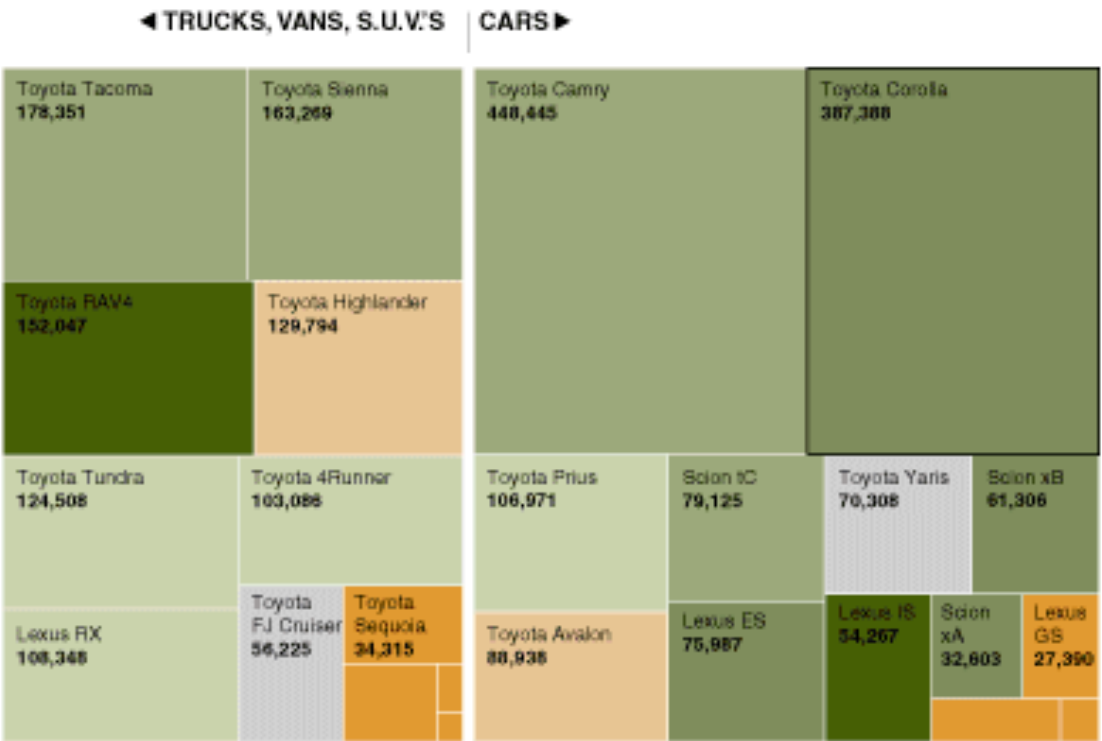


Change in sales from 2005 to 2006



No 2005 sales

Many of these vehicles were introduced in 2005.

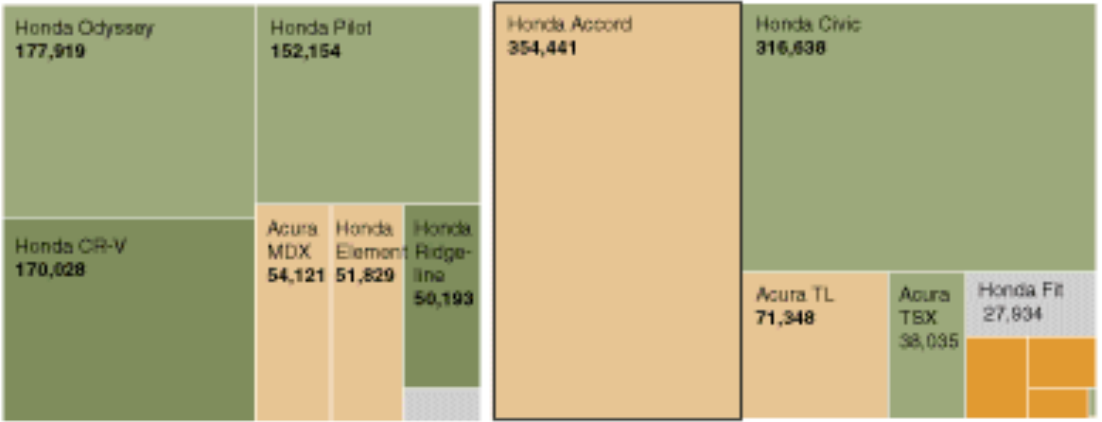


Toyota **+12.5%**
Trucks/vans/S.U.V.'s 1.1 million
Cars 1.5 million

Toyota rolled out a new version of the Camry, and once again it was the country's best-selling car.

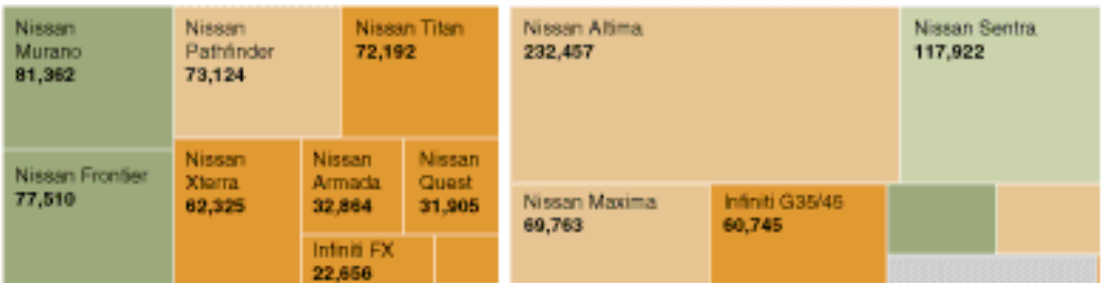


Corolla sales also jumped, along with gas prices. Toyota could not escape the decline in sales of supersized S.U.V.'s like its Sequoia.



Honda **+3.2%**
Trucks/vans/S.U.V.'s 0.7 million
Cars 0.8 million

Like the Corolla, the small Honda Civic did well. But the Accord stalled. Buyers, it seems, are waiting for the new version to be released this year.



Nissan **-5.3%**
Trucks/vans/S.U.V.'s 0.5 million
Cars 0.6 million



BMW **+2.1%**
Trucks/vans/S.U.V.'s 0.1 million
Cars 0.3 million


Mercedes-Benz **+10.3%**
Trucks/vans/S.U.V.'s 0.1 million
Cars 0.2 million

Mercedes-Benz, owned by DaimlerChrysler, had a comeback in 2006, thanks to a new version of its flagship S-Class. BMW sales were helped by a new version of its 3 Series sport sedan.

Sources: Ward's AutoInfoBank; Edmunds

Amanda Cox and Hannah Fairfield/
The New York Times

Treemap by
The New York Times

European Union

European data


[data.europa.eu](#) The official portal for European data


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data.europa.eu event


Training series 'Visualising data with impact': foundations of effective data visualisation

 14 October 2025

 Online

Episode ONE - October 14

<https://data.europa.eu/en/news-events/events/training-data-visualisation-session-1-foundations-effective-data-visualisation>

European Union

European data


[data.europa.eu](#) The official portal for European data


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Training series 'Visualising data with impact': designing with integrity

 15 October 2025

 Online

Episode TWO - October 15

<https://data.europa.eu/en/news-events/events/data-visualisation-training-session-2-designing-integrity>

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data.europa.eu event

Training series 'Visualising data with impact': data storytelling and creating your narrative

 16 October 2025

 Online


Episode THREE - October 16

<https://data.europa.eu/en/news-events/events/data-visualisation-training-session-3-data-storytelling-and-creating-your>

Tomorrow's webinar




 1_The_Basics

 2_History

 3_Chart_Taxonomies

 4_Perception_and_Accessibility

 5_Visual_Design

 6_Annotations_And_Storytelling

 7_Uncertainty

 8_Maps

Extra readings

<https://tinyurl.com/mr2st327>

Designing With Integrity

Thank you!

Alberto Cairo

OpenVisualizationAcademy.com