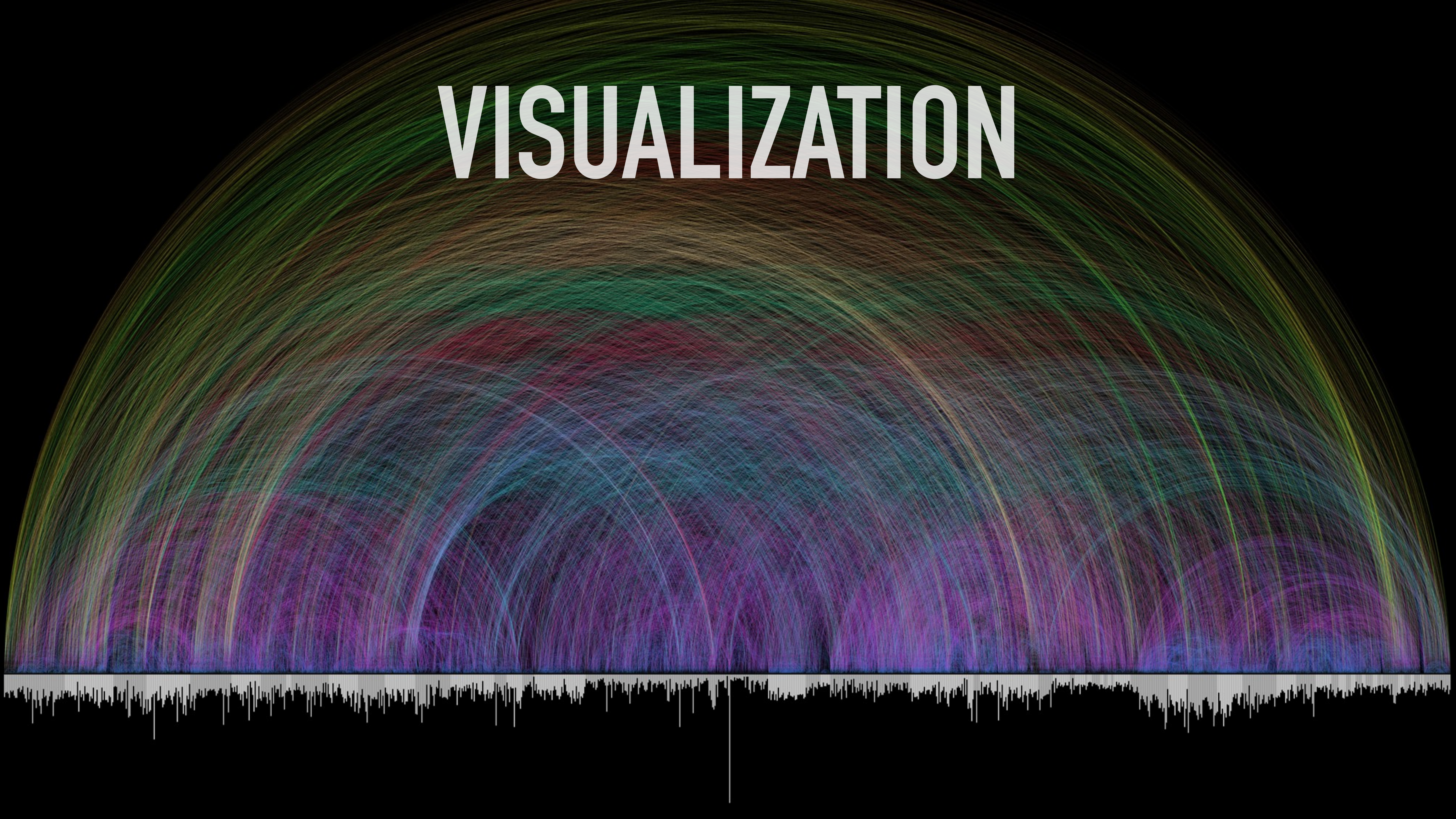


VISUALIZATION



WHAT IS VISUALIZATION?

WHAT IS VISUALIZATION?

- [Geek] Branches of computer graphics and UI design concerned with presenting data to users by means of images.
- [Psychologist] The formation of mental visual images: The act or process of interpreting in visual terms.
- [Visual analytics] “Computer-based visualization systems provide visual representations of datasets designed to help people carry out tasks more effectively” (Munzner).
- [Designer] The process of putting information into visual form: The craft of assigning representational “codes” and techniques to data attributes and conveying meaning (Tufte).
- [Journalist] A form of storytelling to engage the reader into complex and an intricate narrative.

WHY DO WE CARE?

KEGS OF DATA

- Between 1 and 2 exabytes of unique data produced per year (2003)
 - 1000000000000000000000000 (10¹⁸) bytes
- 800 meg for every person (2003)
- Printed documents only .003% of total (2003)
- 90 trillion emails sent on the Internet in 2009

KEGS OF DATA (2016)

- Around 4.4 zettabytes in 2013
 - one zettabyte is equivalent to 44 trillion gigabytes
- In 2014:
- Facebook users share nearly 2.5 million pieces of content.
- Twitter users tweet nearly 300,000 times.
- Instagram users post nearly 220,000 new photos.
- YouTube users upload 72 hours of new video content.
- Apple users download nearly 50,000 apps.
- Email users send over 200 million messages.
- Amazon generates over \$80,000 in online sales.

2016

How Much Data is Produced Every Day?



2.5 Exabytes are produced every day

Which is equivalent to:

🎵 530,000,000 millions songs

📱 150,000,000 iPhones

💻 5 million laptops

📖 250,000 Libraries of Congress

📺 90 years of HD Video

COMPUTING + HUMAN VISION

- Computing + Human Vision
- Highest bandwidth sense
 - Fast, parallel
 - Pattern recognition
- Extends memory and cognitive capacity
- Many People think visually

WHEN DO WE NEED TO VISUALIZE?

- Don't know what you are looking for
- Don't have a priori questions in mind
- Want to know what questions to ask
 - “A graphic display has many purposes but it achieves its highest value when it forces us to see what we were not expecting.”

VISUALIZATION KEY GOALS & BENEFITS

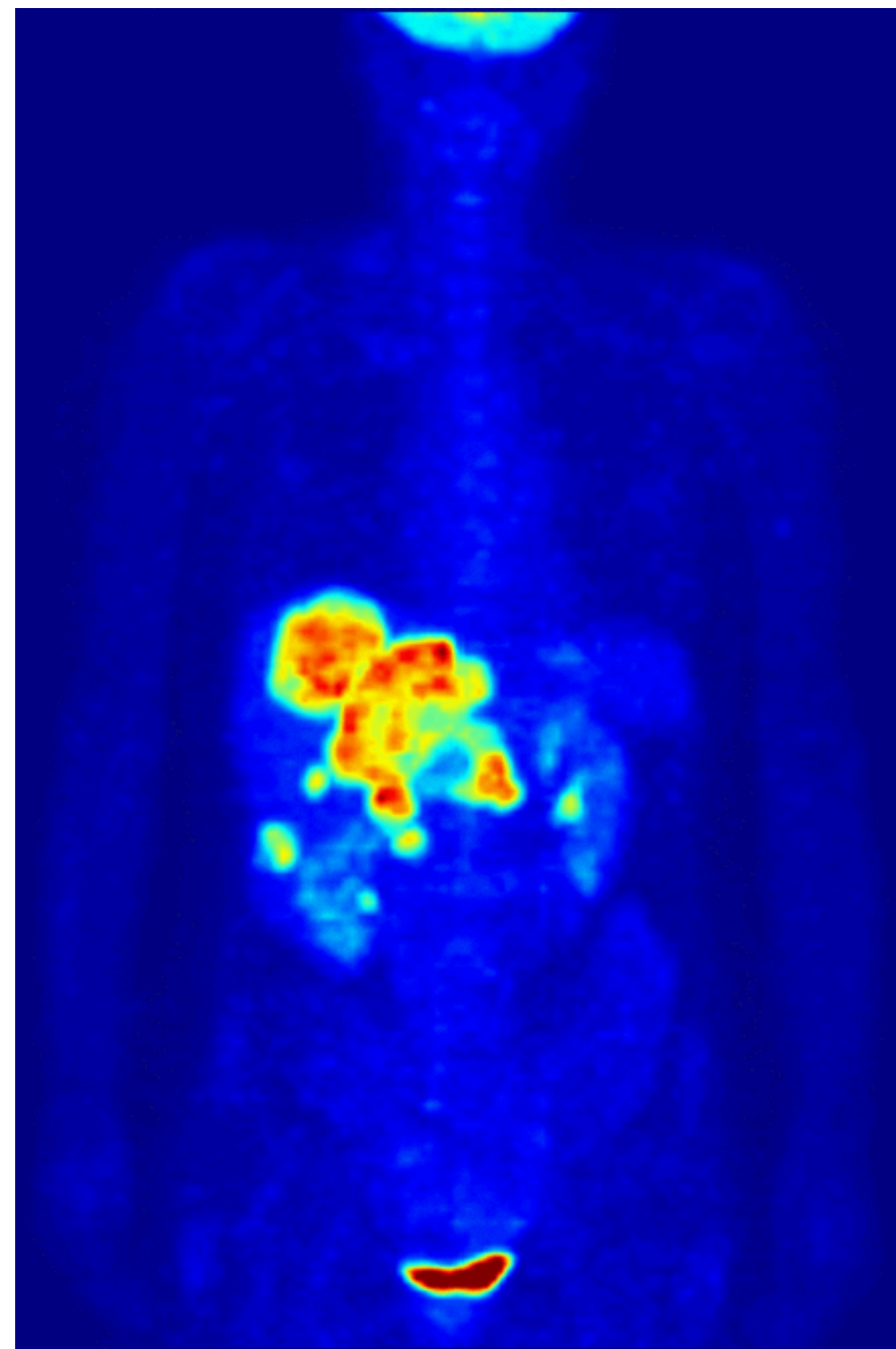
- Support the revealing and discovery of patterns
- Display and reveal complex relationships and inter- relationships
- Convey an impression, evoke an emotion—affect

- Facilitating awareness and understanding
- Helping to raise new questions and supply answers
- Generating insights and hypotheses
- Telling a story and making a point

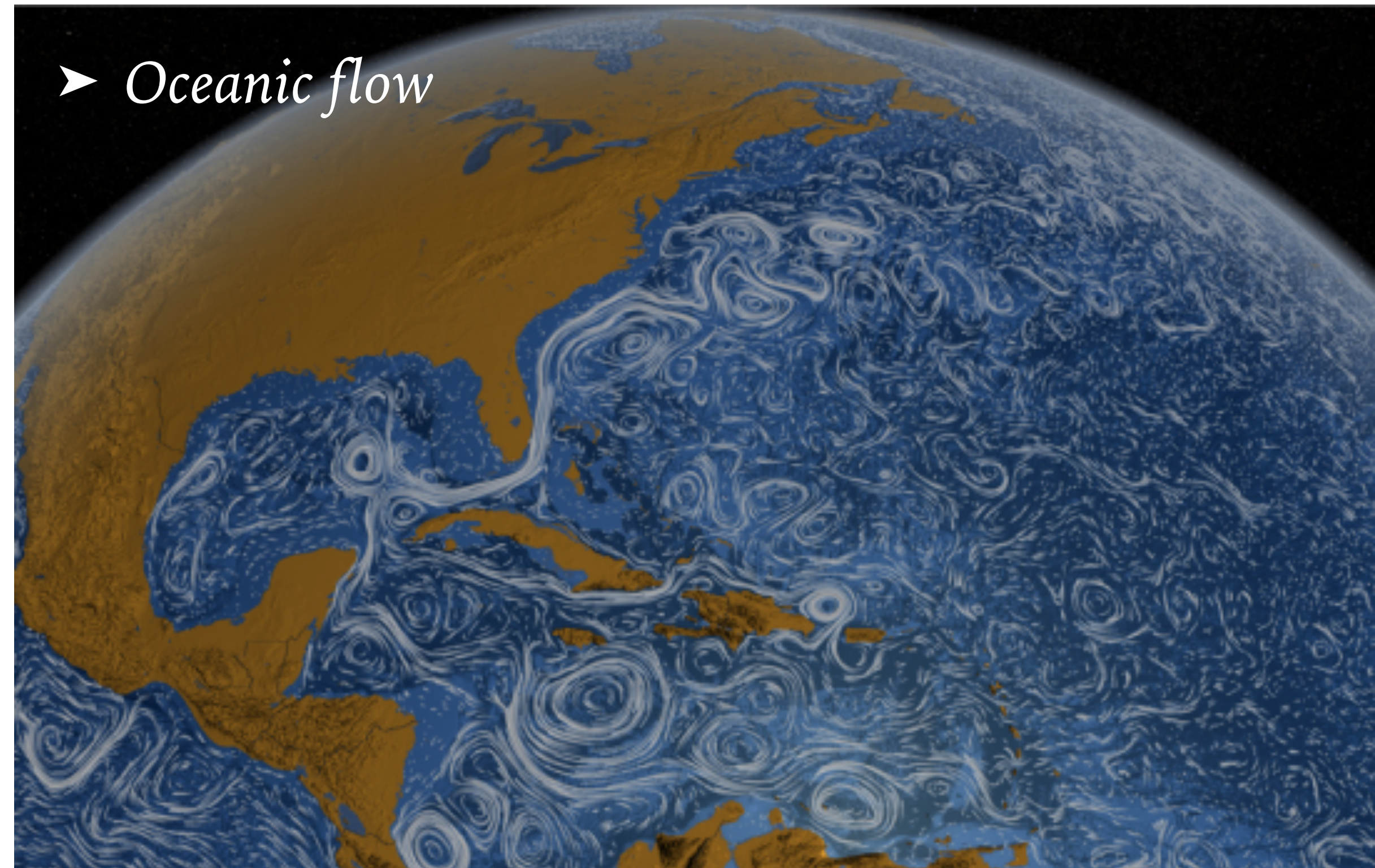
TYPES OF VISUALIZATIONS: SCIENTIFIC

- The visual display of spatial data associated with scientific processes such as the bonding of molecules in computational chemistry
- Deals with data that has a natural geometric structure (e.g. chemical data or wind flows)

➤ *PET scan*



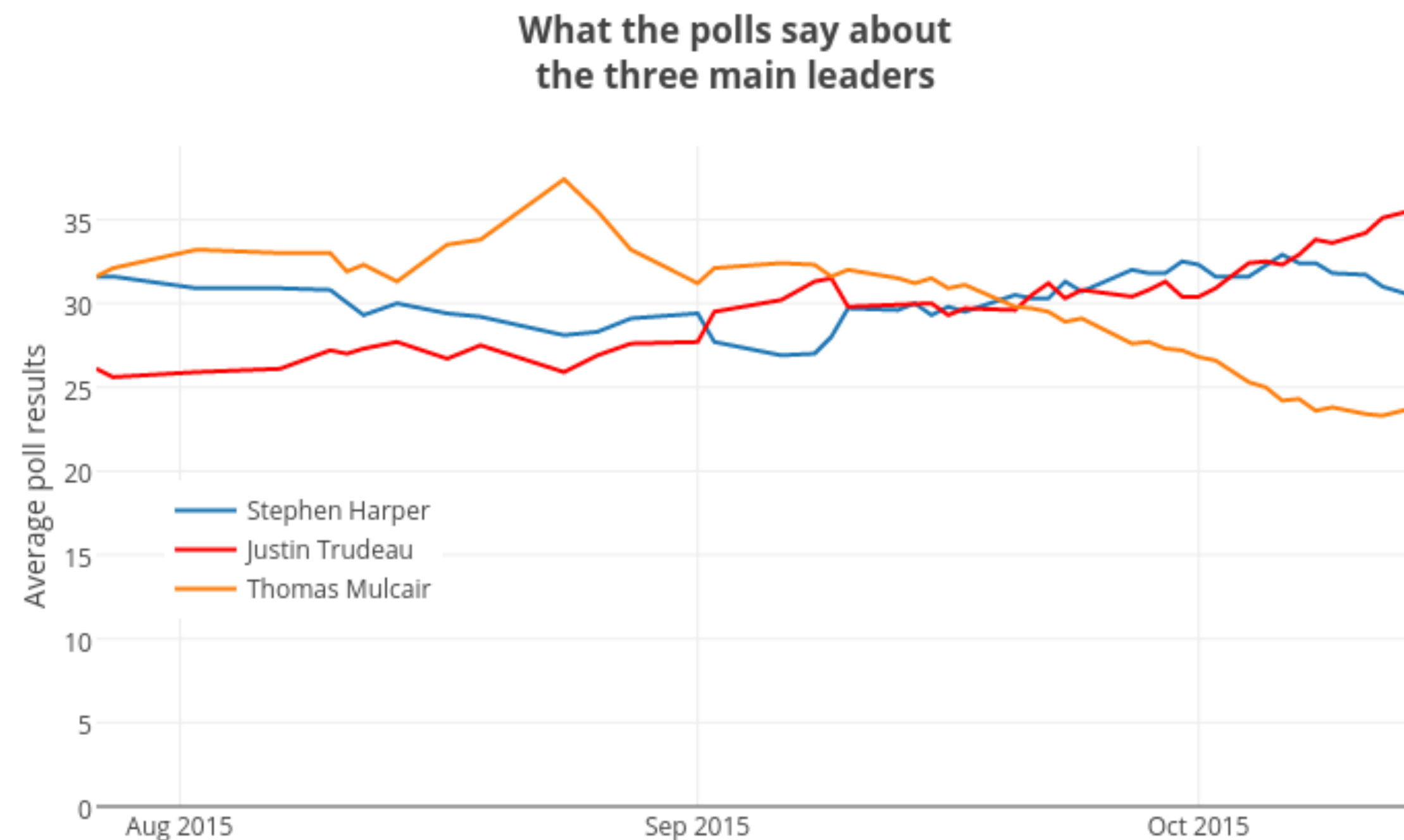
➤ *Oceanic flow*



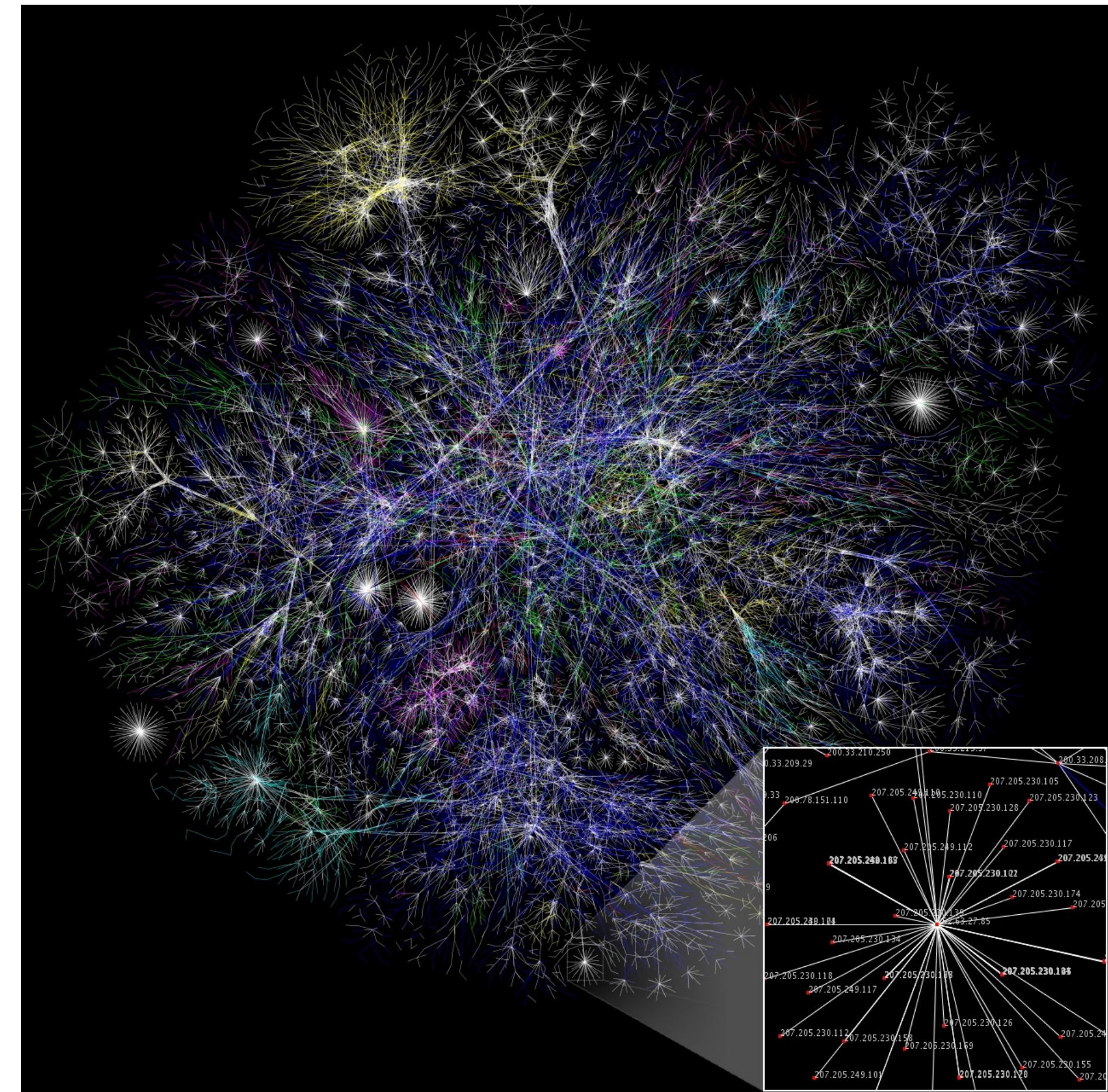
TYPES OF VISUALIZATIONS: INFORMATION

- Visual metaphors for non-inherently spatial data such as the exploration of text-based document databases.
- Assign structure and position to information.

➤ *Internet in 2005*



Source: Éric Grenier/CBC Poll Tracker



THE POWER OF VISUALIZATION

- Representation and Interaction
- “The effectiveness of information visualization hinges on two things: its ability to clearly and accurately represent information and our ability to interact with it to figure out what the information means.”
- How do I get to Parc Agrignon?

← from Concordia University - Loyola Campus
to Angrignon Park, 3400 Boul des Trinitaires, Montréal...

56 min (4.5 km)

via Rue Senkus



Use caution - may involve errors or sections not suited for walking

Concordia University - Loyola Campus

7141 Rue Sherbrooke Ouest, Montréal, QC H4B 1R6

↑ Head southeast toward Rue Sherbrooke Ouest

20 m

↘ Turn right onto Rue Sherbrooke Ouest

450 m

↙ Turn left onto Avenue Elmhurst

350 m

↙ Turn left onto Rue Saint-Jacques

400 m

↘ Turn right toward Boulevard de Sainte-Anne de Bellevue/QC-138 O

38 m

↙ Turn left toward Boulevard de Sainte-Anne de Bellevue/QC-138 O

33 m

↘ Turn right onto Boulevard de Sainte-Anne de Bellevue/QC-138 O

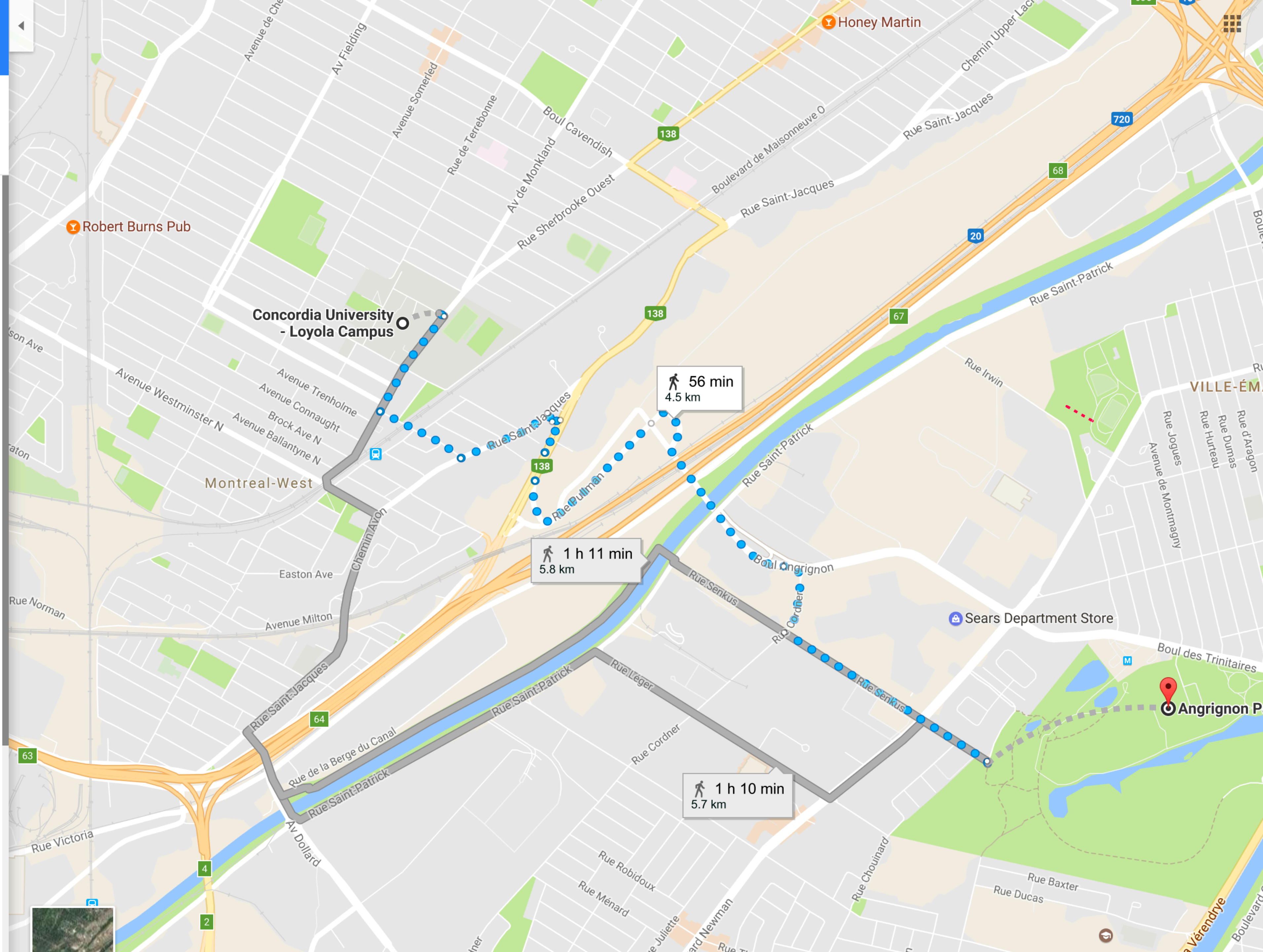
140 m

↙ Slight left onto QC-138 E

120 m

↑ Continue onto Rue Pullman

750 m

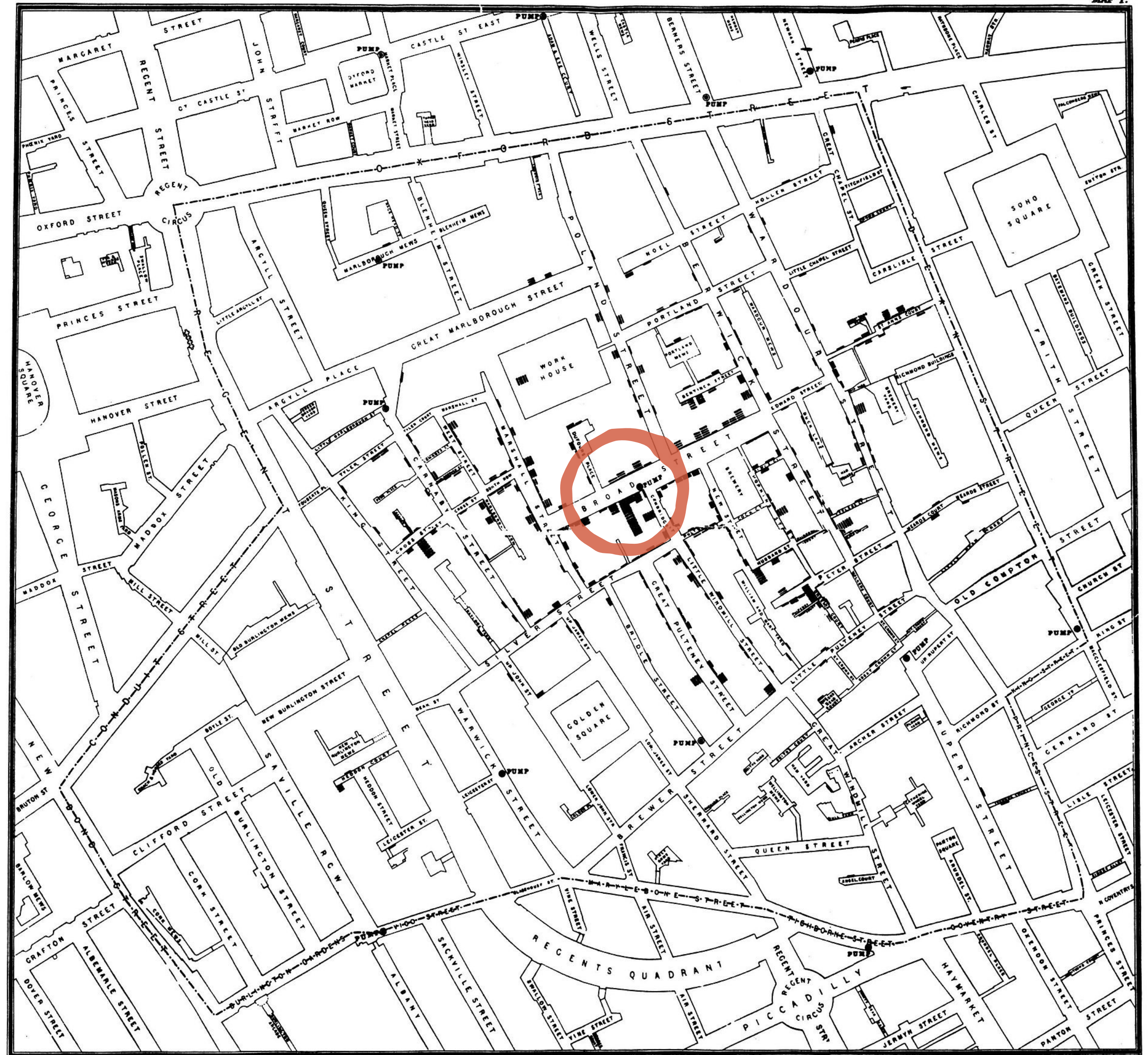


VISUALIZATION FOR PROBLEM SOLVING

- Mystery: what is causing a cholera epidemic in London in 1854?

VISUALIZATION FOR PROBLEM SOLVING

- Mystery: what is causing a cholera epidemic in London in 1854?



STORYTELLING

GRAPHS

- For a long time, we used visualization to support storytelling.
- Bit limited to basic static charts to represent financial and statistic data on reports and newspaper

pação dos Municípios (IPM) de Cariacica devido às novas empresas geradoras de ICMS que se instalaram no município nos últimos anos.

Em 2009 Cariacica se configura como o município do ES com menor receita per capita, conforme pode ser observado na tabela 38. Porém, com os dados sobre população divulgados pelo Censo 2010 e considerando a receita total do município prevista para 2011, a receita per capita de Cariacica passa a se configurar em torno de R\$ 1.000,00.

Mesmo com a menor capacidade de atendimento à população dentre todos os municípios do Espírito Santo, visto que a receita per capita é a menor do Estado, Cariacica entre 2005 e 2009 foi o quarto município do Espírito Santo que mais investiu no período, na ordem de aproximadamente R\$ 213 milhões.

Além disso, o município ainda consegue figurar entre os cem que mais investem no Brasil, de acordo com dados da Revista Multicidades. Na edição de 2010, Cariacica aparece como 71º município do Brasil em total de investimentos. Esse crescimento significa um salto positivo em direção à consolidação de uma cidade com mais equipamentos sociais e com mais infraestrutura, tais como ruas pavimentadas, escolas, unidades de saúde, entre outros.

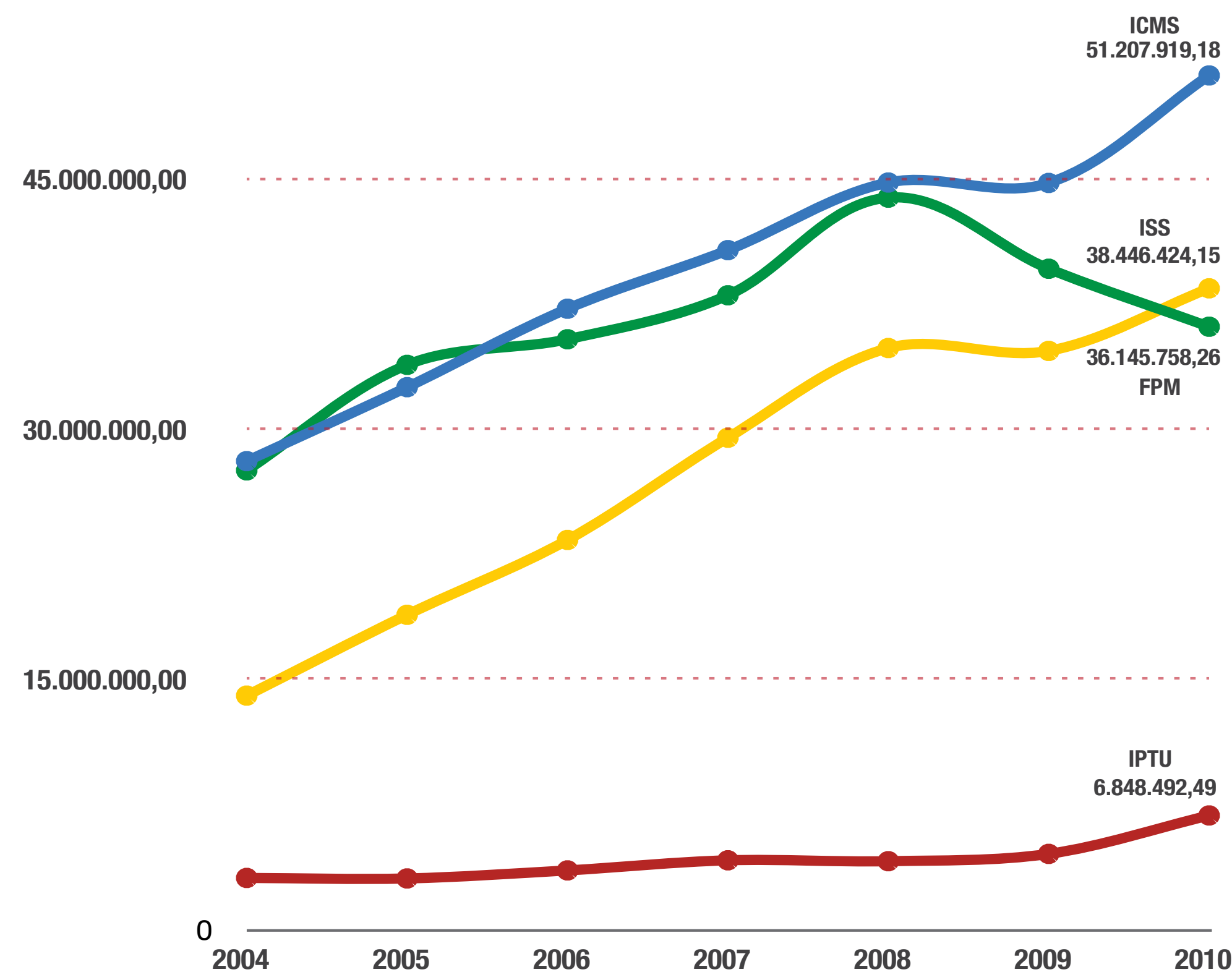
Os recursos destinados aos investimentos cresceram de 2004 a 2010 quase que de forma sucessiva, já que nos anos de 2009 e 2010, devido principalmente à crise econômica mundial, os investimentos em geral diminuiram, não sendo diferente em Cariacica. No entanto, apesar do decréscimo dos últimos dois anos, o investimento em 2010 ainda foi 265% maior do que o de 2004.

TABELA 37 - EVOLUÇÃO DO ICMS, FPM, ISS E IPTU EM VALORES CONSTANTES

	2004	2005	2006	2007	2008	2009	2010
ICMS	28.089.692,67	32.521.843,47	37.225.189,04	40.735.983,77	44.789.853,51	44.762.831,13	51.207.919,18
FPM	27.533.785,28	33.858.948,82	35.392.219,67	38.029.637,46	43.883.960,59	39.621.209,66	36.145.758,26
ISS	14.033.032,15	18.877.408,85	23.363.805,43	29.491.960,56	34.867.702,20	34.695.445,21	38.446.424,15
IPTU	3.103.499,59	3.073.168,72	3.554.633,54	4.160.290,63	4.107.445,86	4.545.419,78	6.848.492,49

Fonte: Balanços Municipais - Resumo Geral da Receita - Anexo 2.

GRÁFICO 18 - EVOLUÇÃO DO ICMS, FPM, ISS E IPTU EM VALORES CONSTANTES



Fonte: Balanços Municipais - Resumo Geral da Receita - Anexo 2.
Obs: Valores constantes com base em 2010, corrigidos pelo IPCA. Elaboração: SEMGE/PMC

La ballena Franca

Es una de las 11 especies que hay en el mundo. Todos los años, entre agosto y diciembre, unos 500 ejemplares de ballena Franca Austral llegan a la Península Valdés, en Chubut, para criar a sus ballenatos. Ese es uno de los pocos lugares del mundo donde se las puede ver en su hábitat natural.

CEDULA DE IDENTIDAD

Para identificarlas se toman fotografías aéreas. La cabeza presenta una serie de callosidades que no varían con el paso del tiempo y son distintas en cada individuo. Así, como si de huellas dactilares se tratara, se han podido identificar y crear fichas como esta, de unos 1.300 animales.

Nombre	Juana	
Primer avistamiento	Fecha 16-10-84 Hora 14.30	
Crias identificadas	3	
Número de avistamientos en la Península Valdés	6	



En las callosidades viven crustáceos llamados siamidos, que son los que le dan el color blanco

COMO RESPIRAN

Como todos los mamíferos, las ballenas tienen pulmones. Originalmente eran animales terrestres que evolucionaron y se adaptaron al agua. En el esqueleto más antiguo que se conoce, los orificios nasales estaban en el extremo de la cabeza. Luego se fueron desplazando.



90% Ballena
10% Hombre

Expiración
Expulsan un chorro de vapor de 5m. de altura, en forma de 'V'.

EL CICLO VITAL

Las ballenas se reproducen en invierno en aguas cálidas. Durante el verano viajan para alimentarse en aguas frías. Tienen una cría cada tres años.



Con la cópula vuelve a iniciarse el ciclo, que dura tres años.

Durante el período de alimentación aumentan de peso hasta un 40%. La grasa almacenada les permite sobrevivir a los inviernos, cuando ayunan, y sirve como aislante térmico.

Ni tan grande ni tan pequeña

BALLENA AZUL. La más grande. Amenazada de extinción. 32 m



FRANCA AUSTRAL. Amenazada de extinción. 16 m



FRANCA PIGMEA. La más pequeña. 6 m



LAS BARBAS

En lugar de dientes tienen 460 barbas de queratina, un tejido similar al de las uñas humanas.



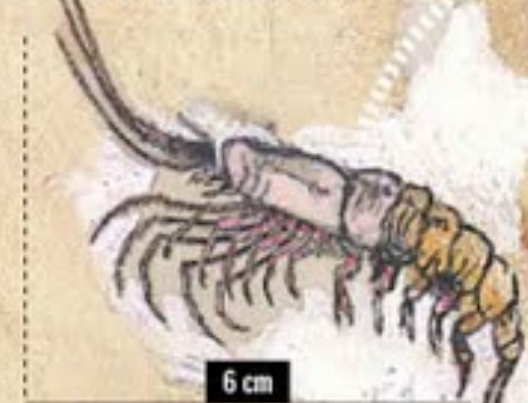
COMO COMEN

1 Nadando a poca velocidad con la boca abierta.

2 La comida entra con el agua.

3 El agua es expulsada con la lengua a través de las barbas, donde queda atrapada la comida.

EL ALMUERZO



Los grandes bancos de krill son su principal alimento. Una ballena franca es capaz de comer más de 300 kilos en una hora.

ALETA PECTORAL

Aparentemente es muy diferente de la pata de un mamífero. Pero su estructura es muy parecida. Tiene los mismos huesos, pero adaptados al agua.



Restos de huesos pelvianos. En embriones de 2 cms se pueden apreciar adosados a la columna. Luego, cuando crece, se desprende.

¿A DONDE EMIGRAN ?

Las zonas donde viven en verano siguen siendo un misterio. Sin embargo, las áreas donde fueron cazadas, hasta su prohibición, permiten suponer que viven entre los paralelos 20 y 60.



Datos generales

Longitud Machos	14 m
Hembras	16 m
Al nacer	5 m
Aleta caudal	5 m
Peso de un adulto	40 tn
El equivalente a 10 elefantes	
Peso al nacer	2,5 tn
Tiempo de vida	60 años
Velocidad	30 kms/h
Profundidad de descenso	300 m



Comparación del tamaño de una ballena con una persona

Una lenta recuperación

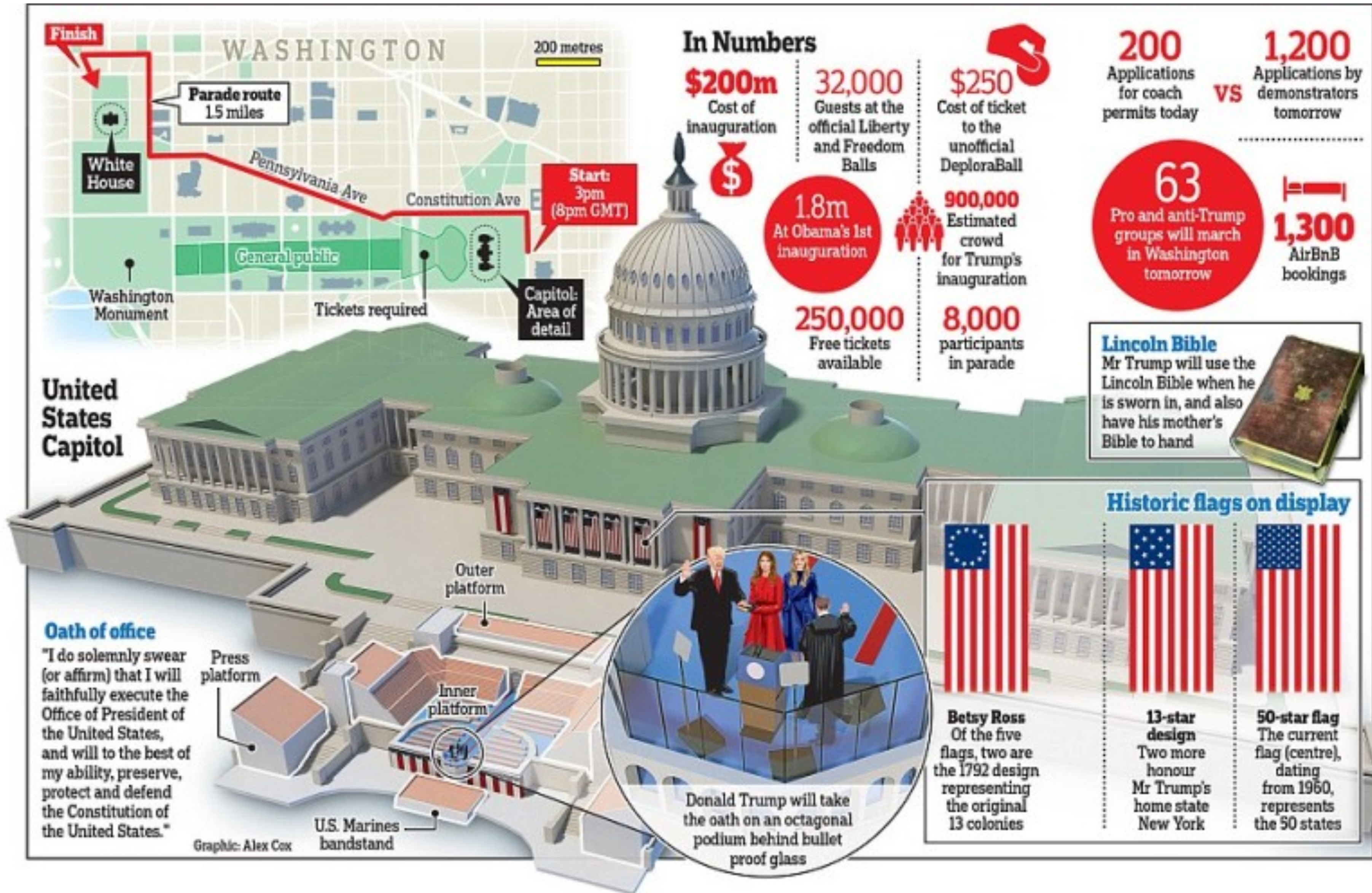
En todo el mundo
En este período fueron cazadas hasta casi su extinción

En la Península Valdés
La población se duplica cada diez años. Cada temporada crece un 7%



Según distintas estimaciones

INFOGRAPHICS



With plunging stock prices and a newly filed bankruptcy filing, some are wondering if this is

THE END OF KODAK'S MOMENT



KODACHROME

The first color still film, Kodachrome revolutionized the industry. The film used a subtractive color method. Kodak halted production of the Kodachrome line of film in 2009.

EASYSHARE

Kodak's collection of digital cameras, all-in-one inkjet printers, accessories and online services fall under the EasyShare brand.



AUGUST 2011

The International Trade Commission issues a split decision in a billion dollar patent dispute between Kodak and Apple and RIM.

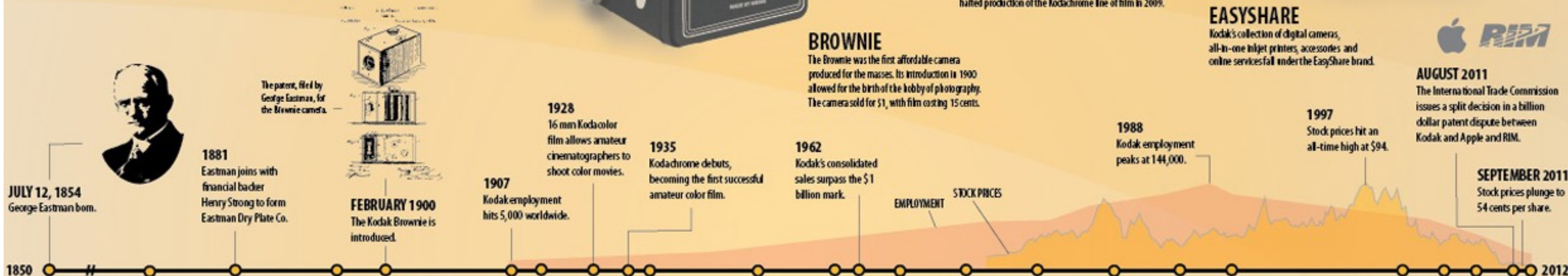
SEPTEMBER 2011

Stock prices plunge to 54 cents per share.

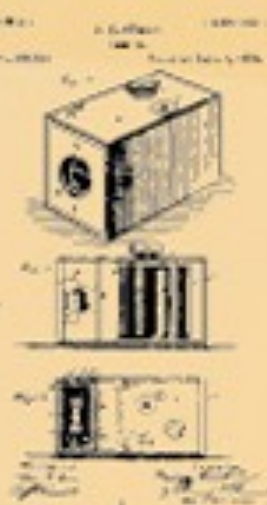
JANUARY 2012

Kodak files for Chapter 11 bankruptcy.

Kodak
2006



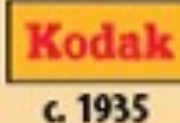
The patent, filed by George Eastman, for the Brownie camera.



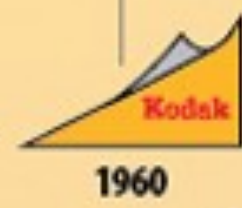
FEBRUARY 1900 The Kodak Brownie is introduced.



c. 1907



c. 1935



1960



1971



OLYMPICS



For more than a century, Kodak has been a supporter of the Olympic Games. After the 2008 Summer Games in Beijing, Kodak ended its classification as a top-tier sponsor. It was also designated the "official photography sponsor" for several of the Games.

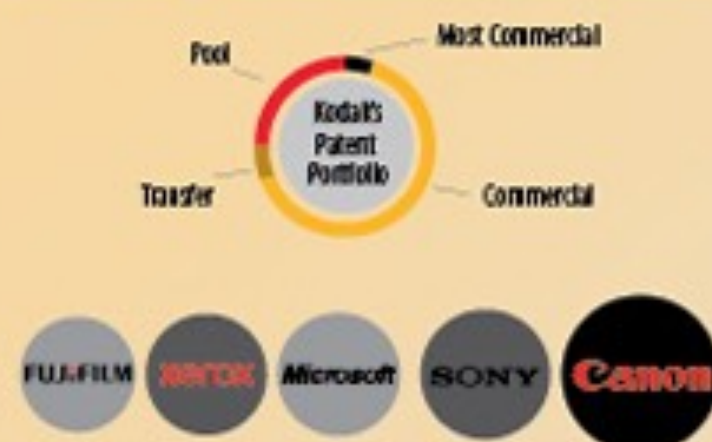
MOVIES



In addition to nine Academy Awards for the company's innovation in the arena of motion pictures, the company boasts an impressive list of movies shot on Kodak film. Every Academy Award-winning film from 1928 to 2009 was shot on Kodak film.

PATENTS

In total, Kodak holds a hefty portfolio of 11,000 patents. In this analysis of Kodak's digital imaging patents, 69 percent of patents were found to be of great interest to potential buyers. Transfer patents are those patents currently caught up in complex prosecution battles and pool patents are patents of little interest to potential buyers. Several technology companies have large interest in the Kodak IP portfolio.



DIGITAL

Kodak holds a small portion of the digital camera market. The company's line of EasyShare cameras includes point-and-shoot pocket-sized cameras and several with large lenses.



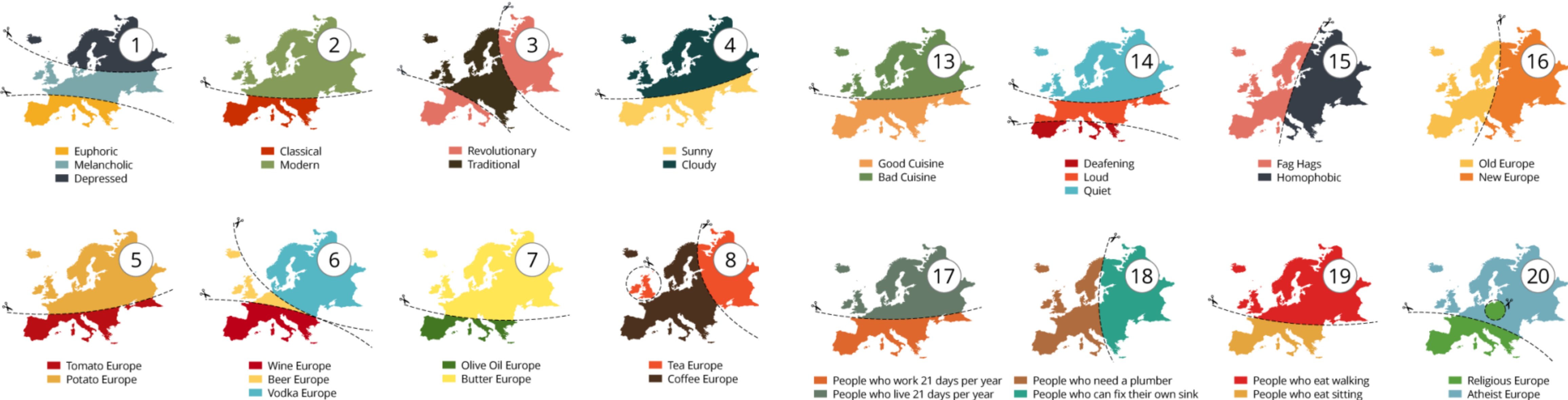
WORLDWIDE

The broad spectrum of tasks Kodak subsidizes perform at locations across the globe reflects George Eastman's insistence on controlling the production process from start to finish.

INFOGRAPHICS

TEARING EUROPE APART

20 ways to slice a continent from Yanko Tsvetkov's Atlas of Prejudice 2



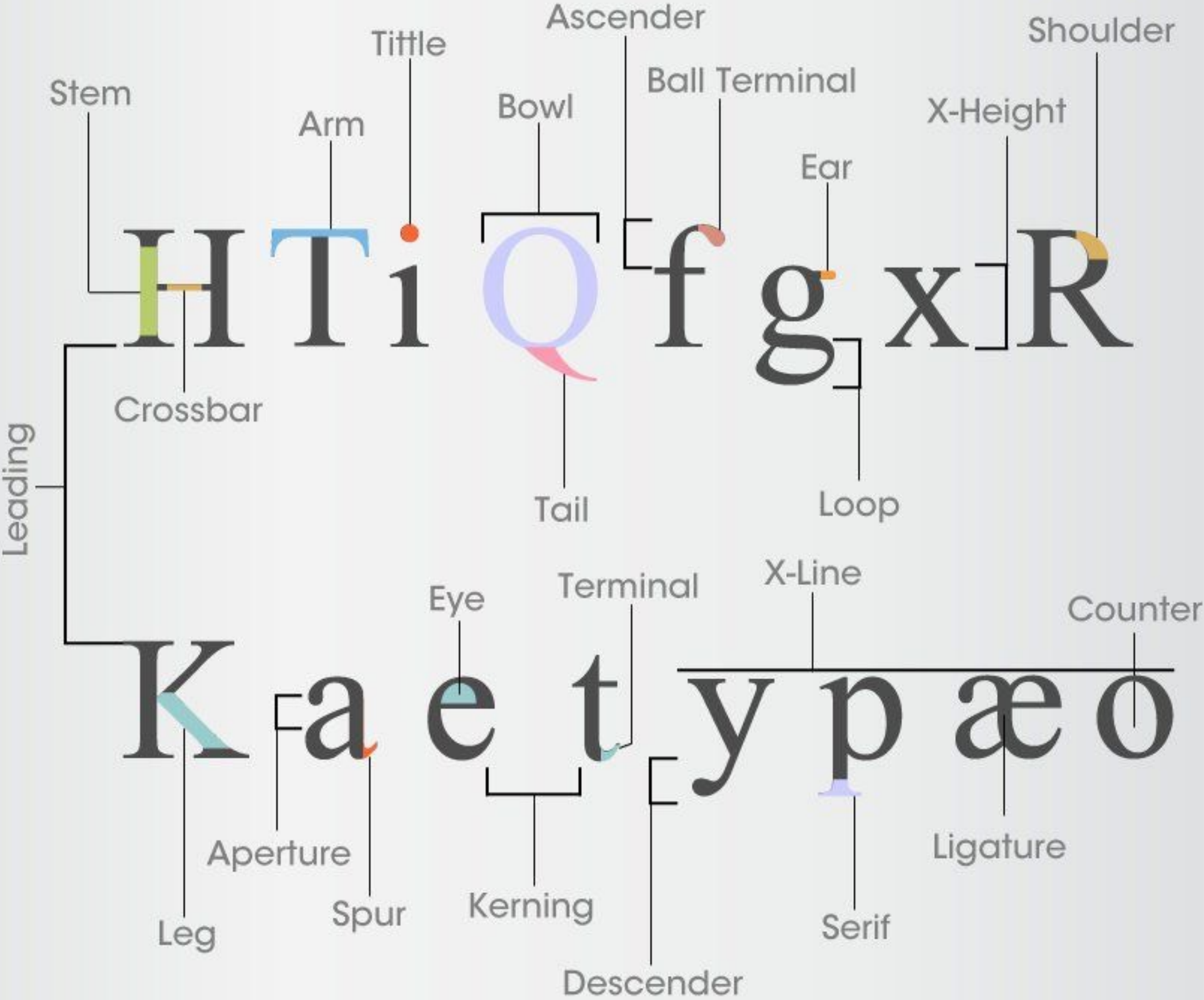
INFOGRAPHICS

THELOGOCOMPANY.NET'S GUIDE TO

TYPOGRAPHY

AND

FONT S



INFORMATION VISUALIZATION (INFOVIS)

- Information visualization o produce “data-driven stories.”
- Use of design principles to guide the audience to find patterns through the dataset (Week 2)
 - Pre-attentive processing
 - Gestalt.
- Maps visual attributes (size, length, shapes, colours, etc.) to dataset’s variables to generate meaningful images.
- InfoVis storytelling is not just about the data, but about all the visual attributes selected by designers to give form to the story.

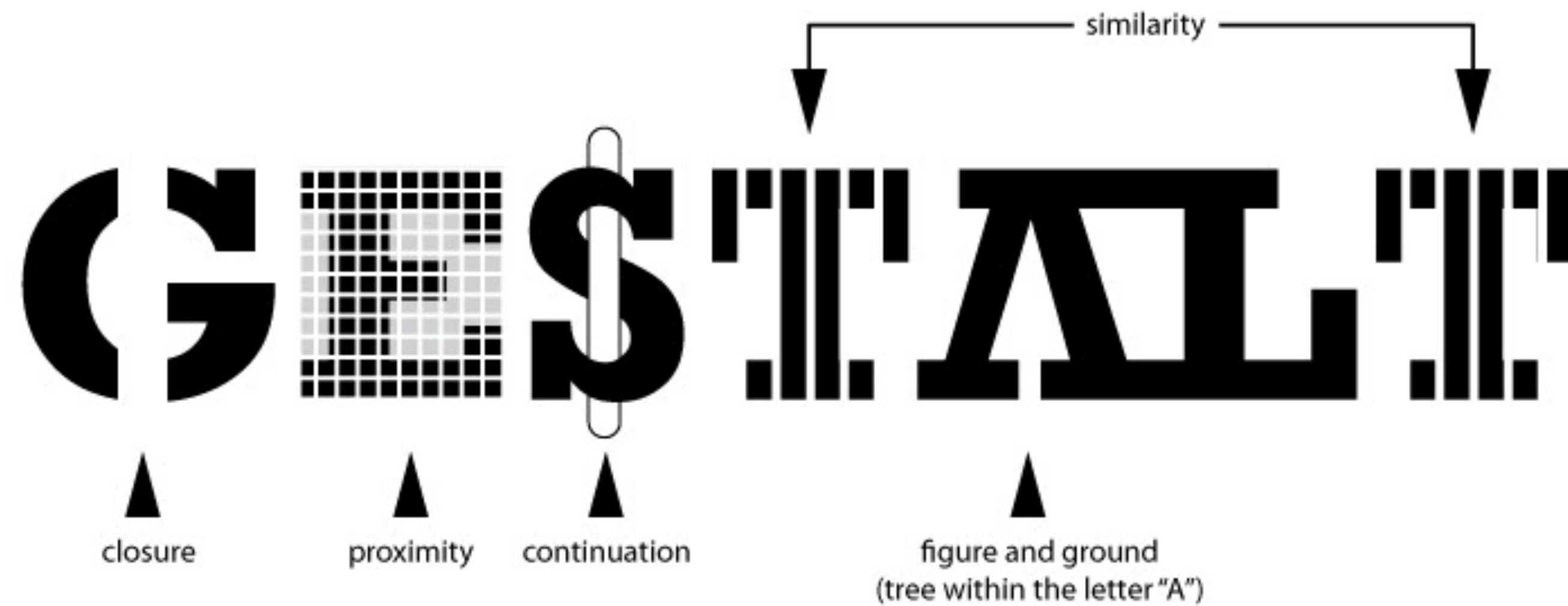
How Many 3's?

1281768756138976546984506985604982826762
9809858458224509856458945098450980943585
9091030209905959595772564675050678904567
8845789809821677654876364908560912949686

How Many 3's?

1281768756138976546984506985604982826762
9809858458224509856458945098450980943585
9091030209905959595772564675050678904567
8845789809821677654876364908560912949686

Stage 2: Intermediate Level: Patterns recognition



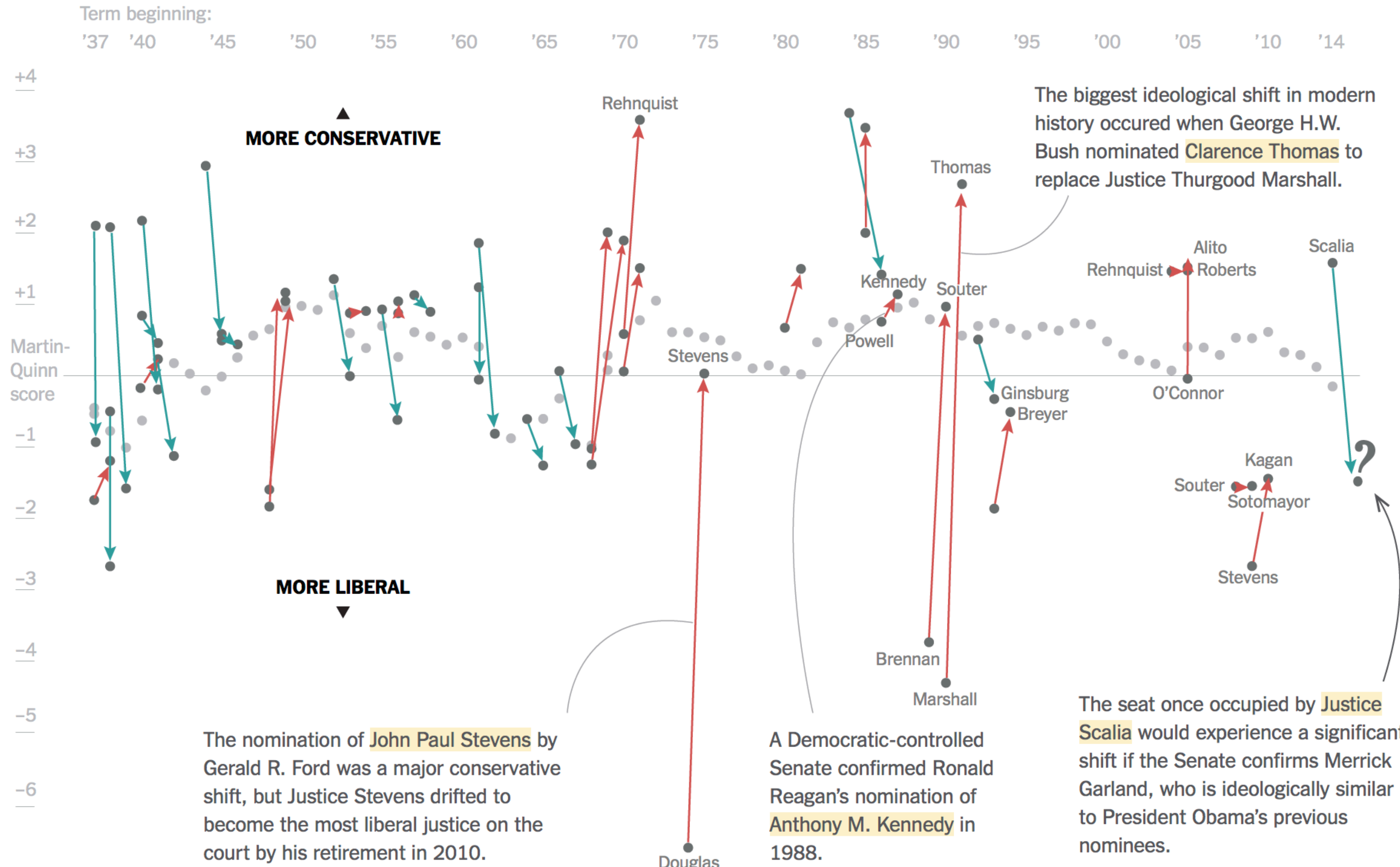
The Gestalt laws

- 1. Proximity
- 2. Similarity
- 3. Connectedness
- 4. Continuity
- 5. Symmetry
- 6. Closure
- 7. Common fate
- 8. Figure-ground

Scalia's Seat Could Become Much More Liberal

Arrows represent a shift in ideology when a vacancy is filled on the court, either to a → more conservative or → more liberal justice.

Each dot represents the ideology of one justice:
● Median for the term ● Outgoing or incoming

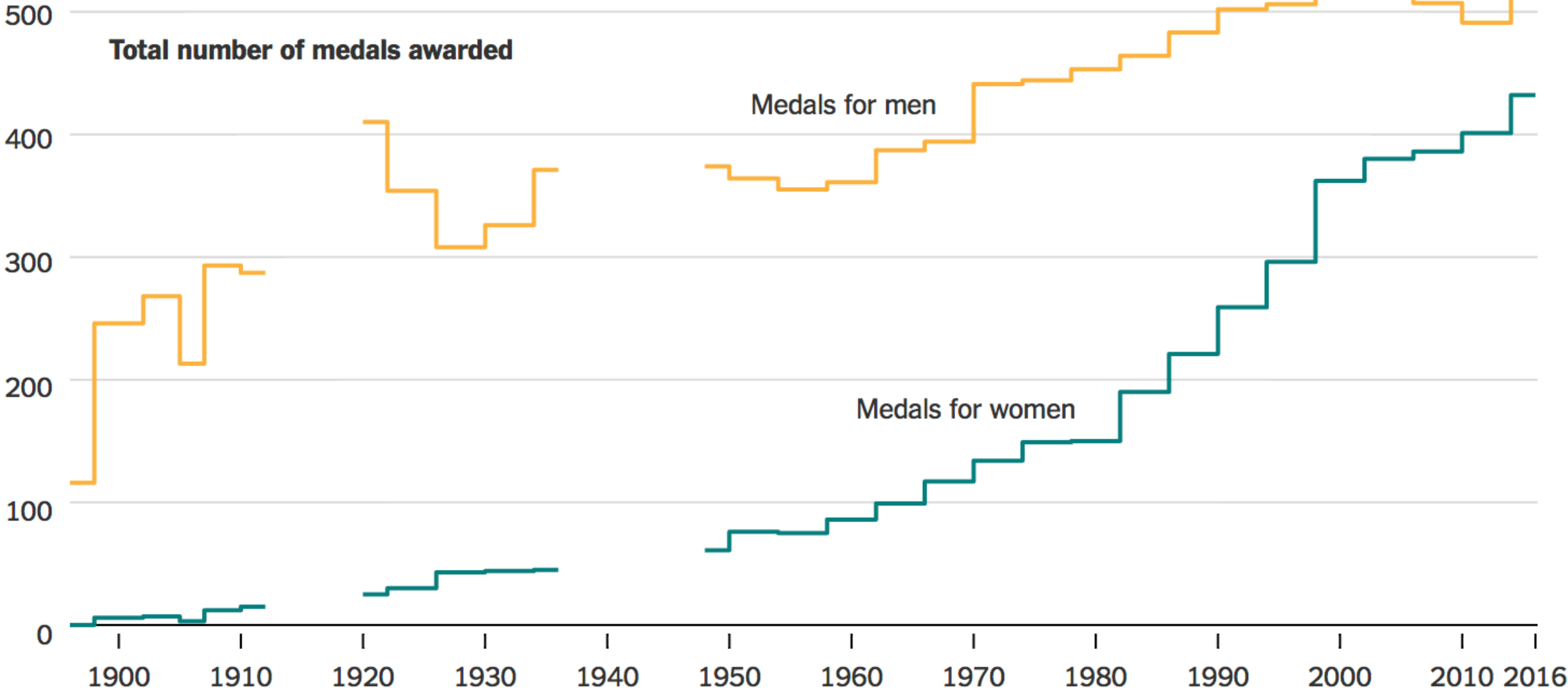


.....
 ➤ The Potential for the Most Liberal Supreme Court in Decades (NYT)

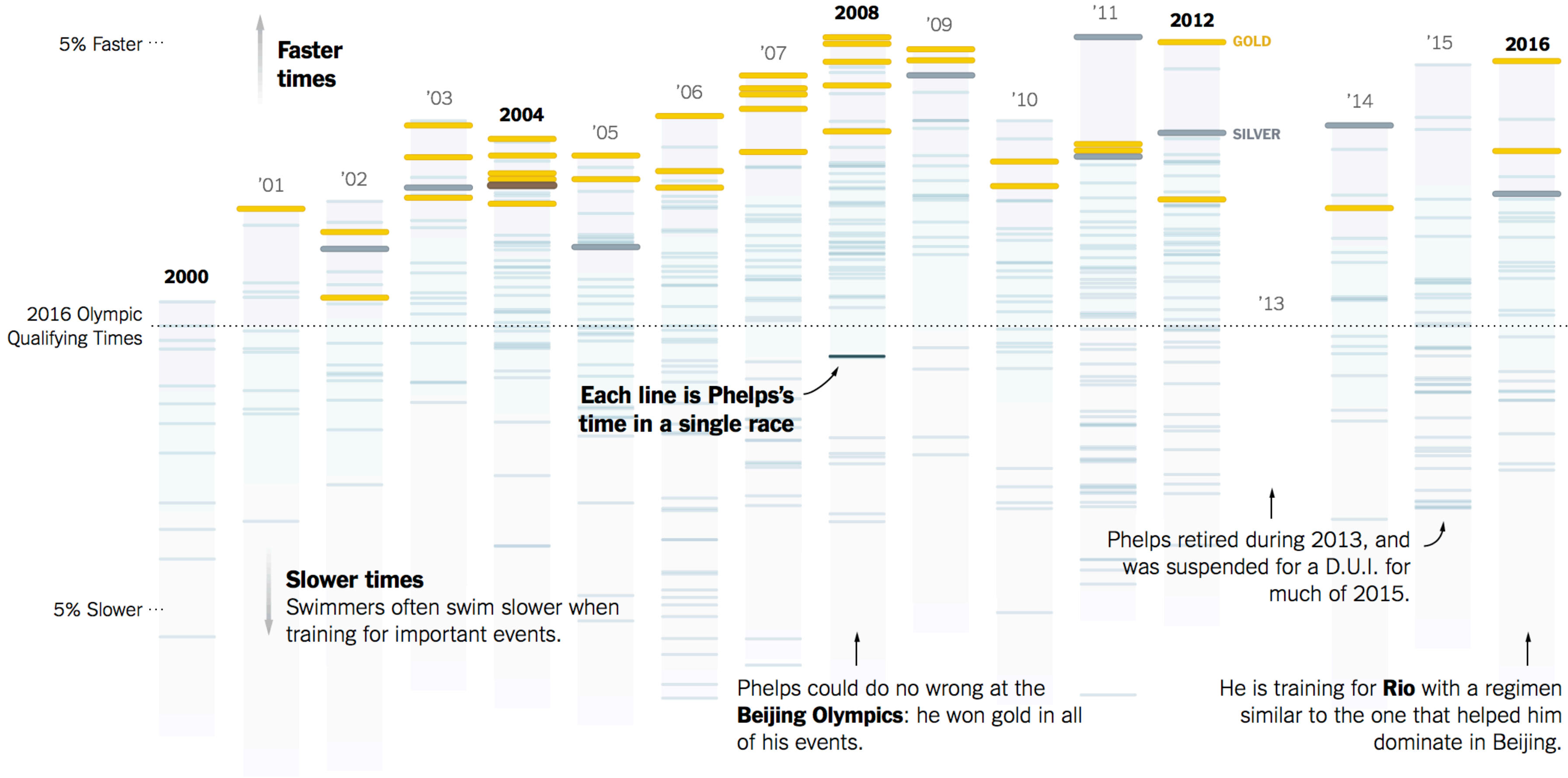
INFORMATION VISUALIZATION (INFOVIS)

Over All, There Are Still Fewer Medals That Women Can Win

► *The Countries Where Women Won More Medals Than Men in Rio (NYT)*



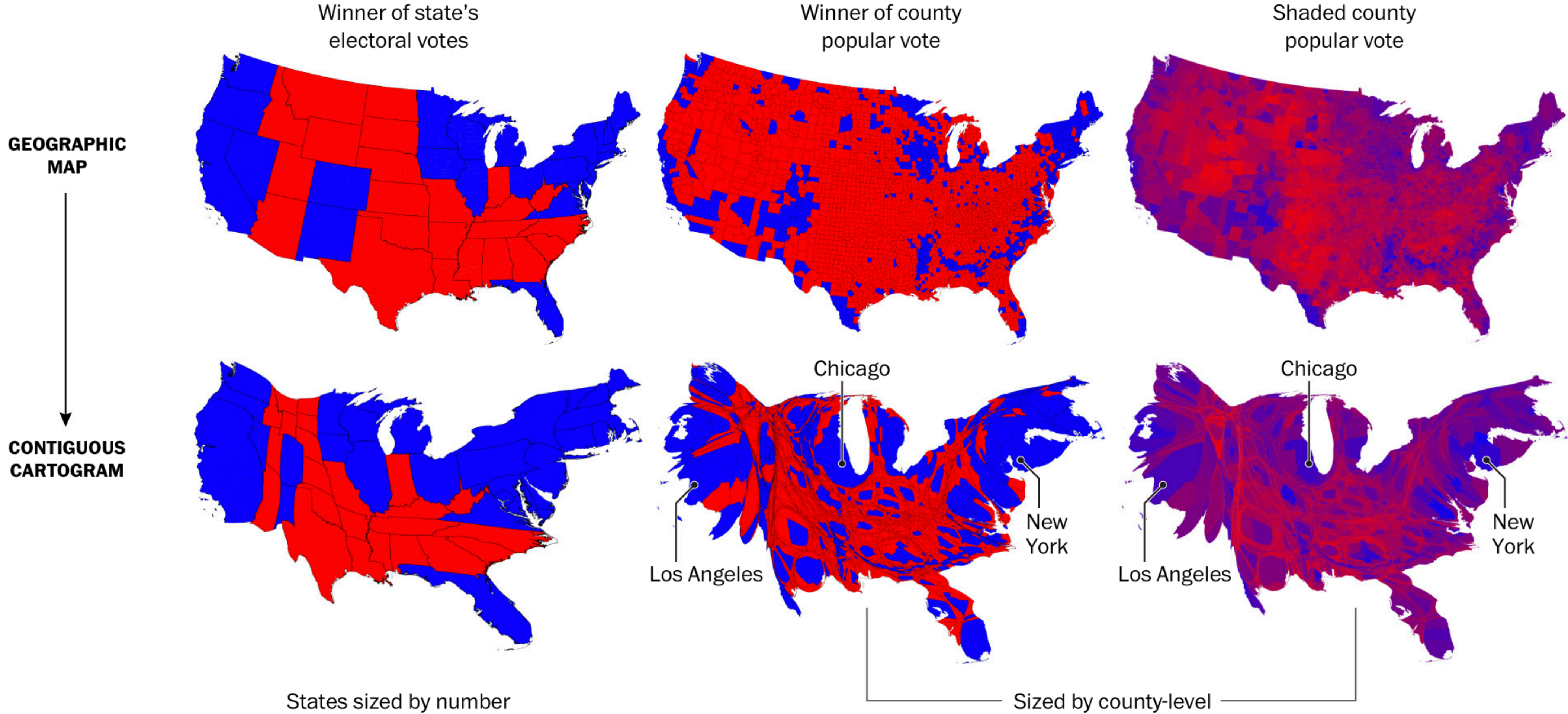
INFORMATION VISUALIZATION (INFOVIS)



➤ Michael Phelps vs. Himself (NYT)

INFORMATION VISUALIZATION (INFOVIS)

➤ Election maps are telling you big lies about small things (Washington Post)



INFORMATION VISUALIZATION (INFOVIS)



► The Two Americas of 2016 (NYT)

LINEAR NARRATIVE VISUALIZATION (VIDEO)



➤ Hans Rosling's 200 Countries, 200 Years

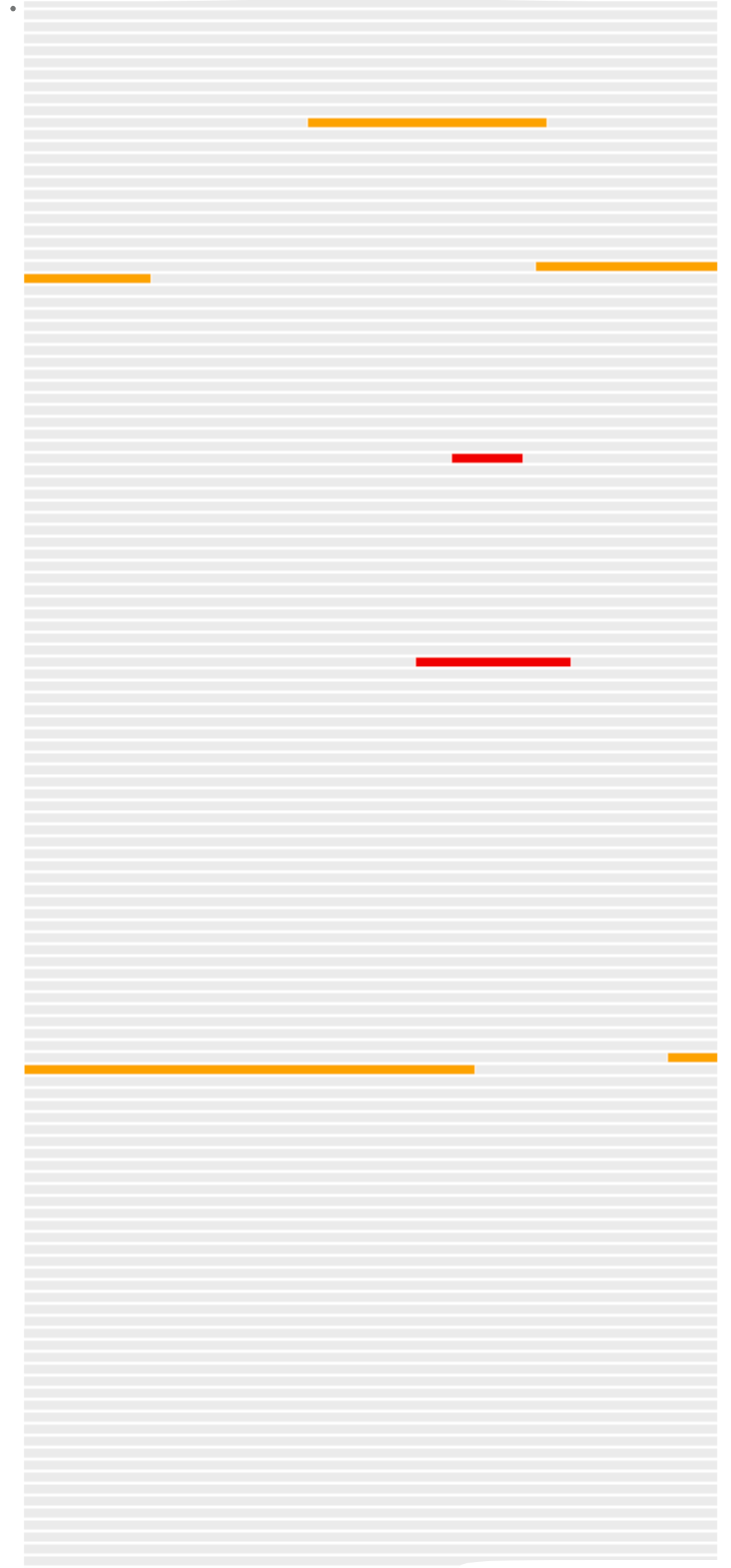
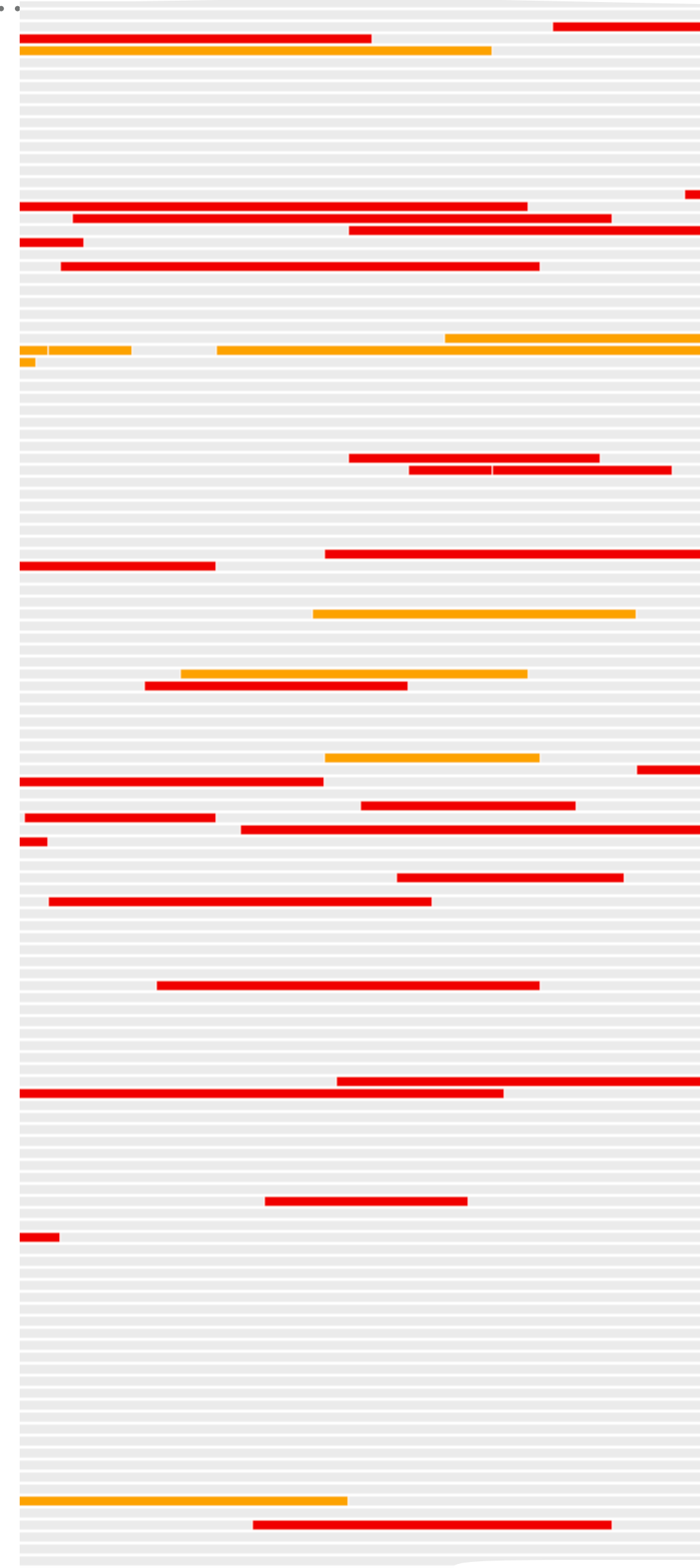
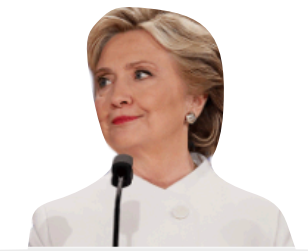
DATA-MINING

- Text-mining, tracking, Surveillance, Machine-learning.
- Extracting and producing more data

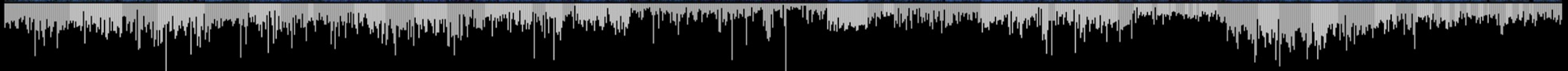
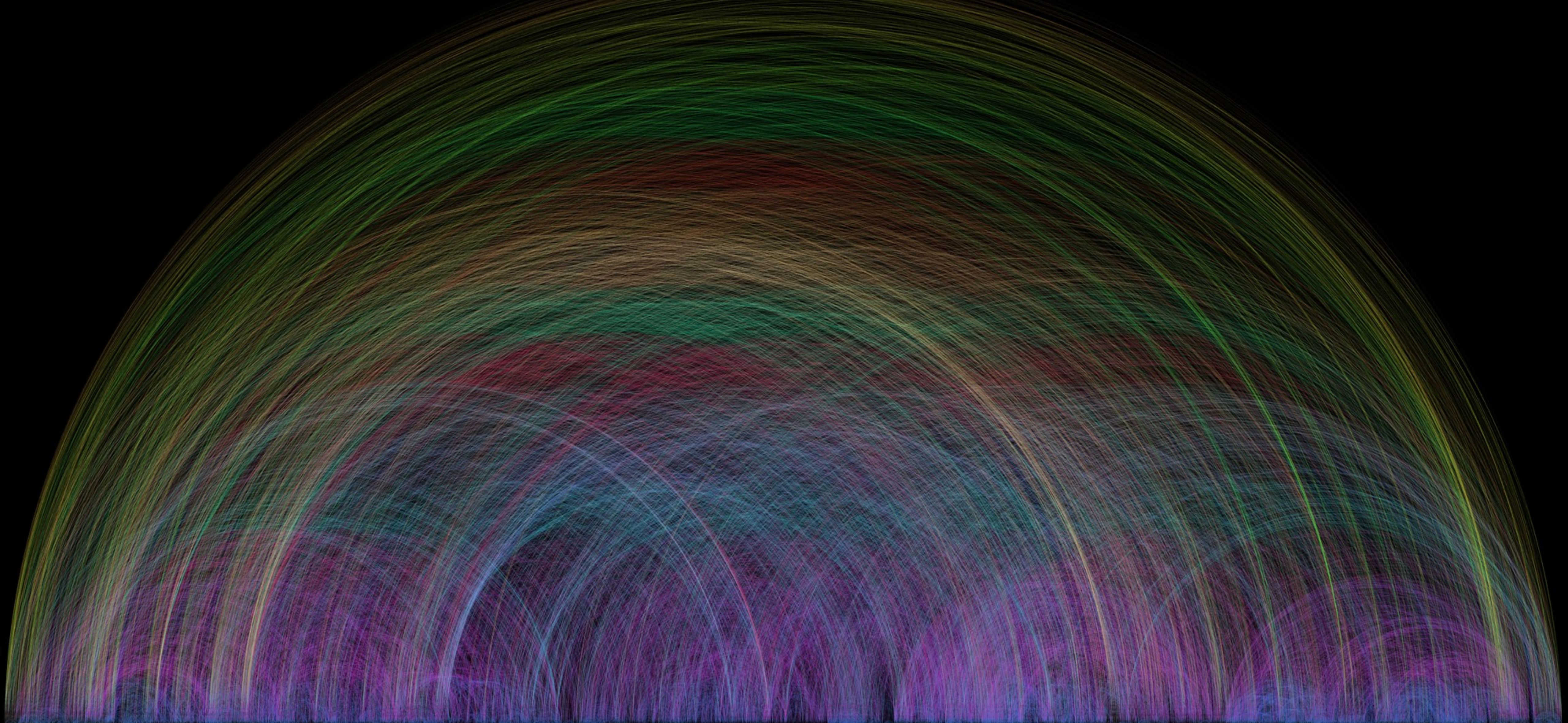
spread ruler. Trace around the construction pattern with your hand pencil. Lift construction pattern and lay it aside. Trace repeatedly the new final pattern which provides the control in a shoulder dart. Measure it in a final pattern. It needs completing. 6. Complete the open end of the shoulder dart as shown in Fig. 5. Due to the sloping seam of the shoulder a square appears at the opening of the dart. Extend line B-C to a point which is the center of the dart opening. From point B, bring a ruler line up to mark that first line by completing the edge of the dart in this manner you will find when you assemble your pattern which will be cut from this pattern. That it will provide a perfect edge to the shoulder seam when the dart has been folded over and pinned into position. Considering final pattern. You will recall that no seam allowance was provided in the slope from which you made a final pattern. In some we added to that construction pattern, it must be provided at this point. All final patterns should have seam allowance. Seam allowance are not standardized in the garment industry. They are varied according to the weight of the fabric being used or the selling price of the garment. Higher priced garments usually have generous seam allowance to facilitate alterations. For the sake of uniformity as you study, use these seam allowances on all patterns: 1/4 inch seam except the neckline which may be 1/2 inch wide. Seam Allowance 1. With the aid of your transparent ruler, add 1/4 inch allowance to all edges except the center front and neckline. 2. Add 1/4 inch allowance at the neckline. (Fig. 4.) Pattern 4. Now and cut a square notch at the edge of the dart. 2. Mark three circular punch holes if desired near the outer edge to indicate that the pattern is to be laid on a size of fabric as shown in Fig. 7. 3. Mark circle or punch hole to indicate ring point of dart. 4. With your triangle and as shown in Fig. 7, draw the arrows which will show position of the vertical horizontal grain of the fabric when using the pattern to cut the fabric final piece. Showing final pattern for final part 14 inches, where needed. Corrected seam edges at dart openings. Seam allowance at specified grain line indicators. Five such holes indicating fold, punch hole or circle indicating end of dart. Another indicating edge of dart. Additional indicating various sections to be joined together at seam. (Not required in this pattern.) The Shoulder Dart in this problem. Study the method used for shifting the control from one location to another. For the sake of beauty in design the dart is preferably to place the control dart in one position in one pattern and in another position in the next. This can be applied easily. Original foundation slopes provide for a single dart which extends from waistline to bust line. Waist and about for figure-fit the number inches to equivalent with other pattern cutting principles explained in other dress chapters on this page from the book, and cut the pattern on the line. Trace around in an outline which is shown as you may provide final shape pattern. In Fig. 3 the dart extends from the shoulder seam to the bust point. Your problem is to shift the waistline to the shoulder seam and to complete a final pattern and make. Read Book Carefully Before Proceeding your cardboard waistline control slope on a piece of white construction paper and trace around the pattern with your pencil. 1. Lift your cardboard closer next from the tracing. Observe the opening which represents the area of dart at line. 2. Draw a dotted line across bottom of this dart as shown in Fig. 2. 3. The paper shows and cut out this fraction pattern. Do not cut out the dart. Now lay out along the dotted line which you added. 4. Fold over the dart at position by bringing two lines together. Your pattern has a ridge at the bust point. Pin dart over temporarily at about 1/2 inch from pattern up over the small area. 5. Fix the pattern up to the small area, starting with the shoulder. The cut it and then under the arm. Don't be afraid to stick your face into the face, that is what it is made for! 6. Correct shape of dart. While construction pattern is over small form, lightly stretch with your blue pencil, a line extending from center line over back to bust point. (Fig. 1) 7. Have construction pattern and upper waistline dart necessarily. With your 12 and ruler, correct your first line to a straight, close line. Now line line appears to dip toward bust point. 8. Bring waistline dart into closed position previously. 9. You are now ready to shift dart from the previous position waistline into the new shoulder position, as shown in your original sketch. With your chair stick from the side and lift line from the shoulder seam. (Fig. 4) Inward on the dart and shift into the point of the bust, you will shift to 1 1/2. Flatten your pattern over the table, leaving the waistline dart pinned. Notice how the new shoulder dart spreads over pattern flatness. The position for the control has been shifted from the original waist line position to the shoulder. 10. Complete the first step in pattern making and use the same to make the next pattern. Making final pattern over cardboard as 1. Select another piece of pattern paper. 2. Spread it flat upon the table. 3. Lay the construction pattern upon it. 4. Shift together by sliding the piece vertically into the table. 5. With the aid of your transparent ruler, trace around location pattern with your hand pencil. Lift construction pattern and lay it aside. 5. Your tracing represents the new final pattern which provides the control in a shoulder dart. Measure it in a final pattern. It still needs completing. 6. Complete end of the shoulder dart as shown in Fig. 5. Due to the sloping seam of the shoulder, a square appears at the opening of the dart. Extend line B-C to a point which is the center of the dart opening. From point B, bring a ruler line up to mark that first line by completing the edge of the dart in this manner you will find when you assemble your pattern which will be cut from this pattern. That it will provide a perfect edge to the shoulder seam when the dart has been folded over and pinned into position. Considering final pattern. You will recall that no seam allowance was provided in the slope from which you made a final pattern. In some we added to that construction pattern, it must be provided at this point. All final patterns should have seam allowance. Seam allowance are not standardized in the garment industry. They are varied according to the weight of the fabric being used or the selling price of the garment. Higher priced garments usually have generous seam allowance to facilitate alterations. For the sake of uniformity as you study, use these seam allowances on all patterns: 1/4 inch seam except the neckline which may be 1/2 inch wide. Seam Allowance 1. With the aid of your transparent ruler, add 1/4 inch seam allowance to all edges except the center front and neckline. 2. Add 1/4 inch allowance at the neckline. (Fig. 4.) Pattern 4. Now and cut a square notch at the edge of the dart. 2. Mark three circular punch holes if desired near the outer edge to indicate that the pattern is to be laid on a size of fabric as shown in Fig. 7. 3. Mark circle or punch hole to indicate ring point of dart. 4. With your triangle and as shown in Fig. 7, draw the arrows which will show position of the vertical horizontal grain of the fabric when using the pattern to cut the fabric final piece. Showing final pattern for final part 14 inches, where needed. Corrected seam edges at dart openings. Seam allowance at specified grain line indicators. Five such holes indicating fold, punch hole or circle indicating end of dart. Another indicating edge of dart. Additional indicating various sections to be joined together at seam. (Not required in this pattern.) The Shoulder Dart in this problem. Study the method used for shifting the control from one location to another. For the sake of beauty in design the dart is preferably to place the control dart in one position in one pattern and in another position in the next. This can be applied easily. Original foundation slopes provide for a single dart which extends from waistline to bust line. Waist



INFORMATION VISUALIZATION (INFOVIS)



- todas las mentiras de Trump y Clinton frente a frente y en un vistazo (Univision)



➤ *Bible Cross-References*

NEW YORK



- ▶ *Bike share mapping creates beautiful portraits of London, NYC and Berlin (The Guardian)*



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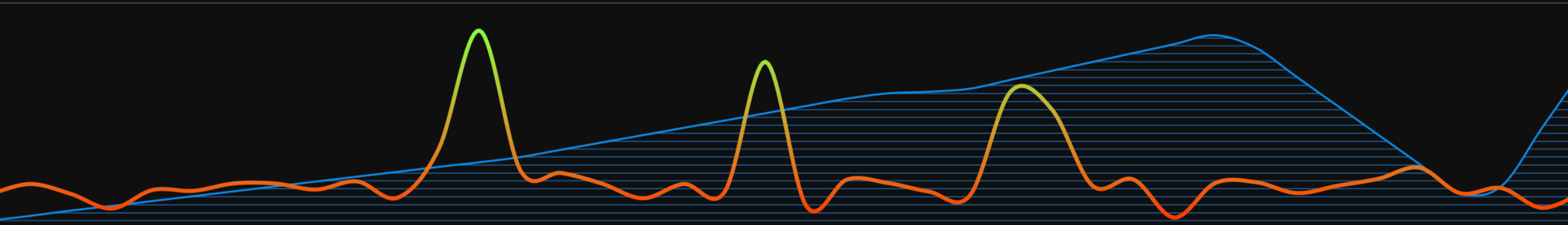
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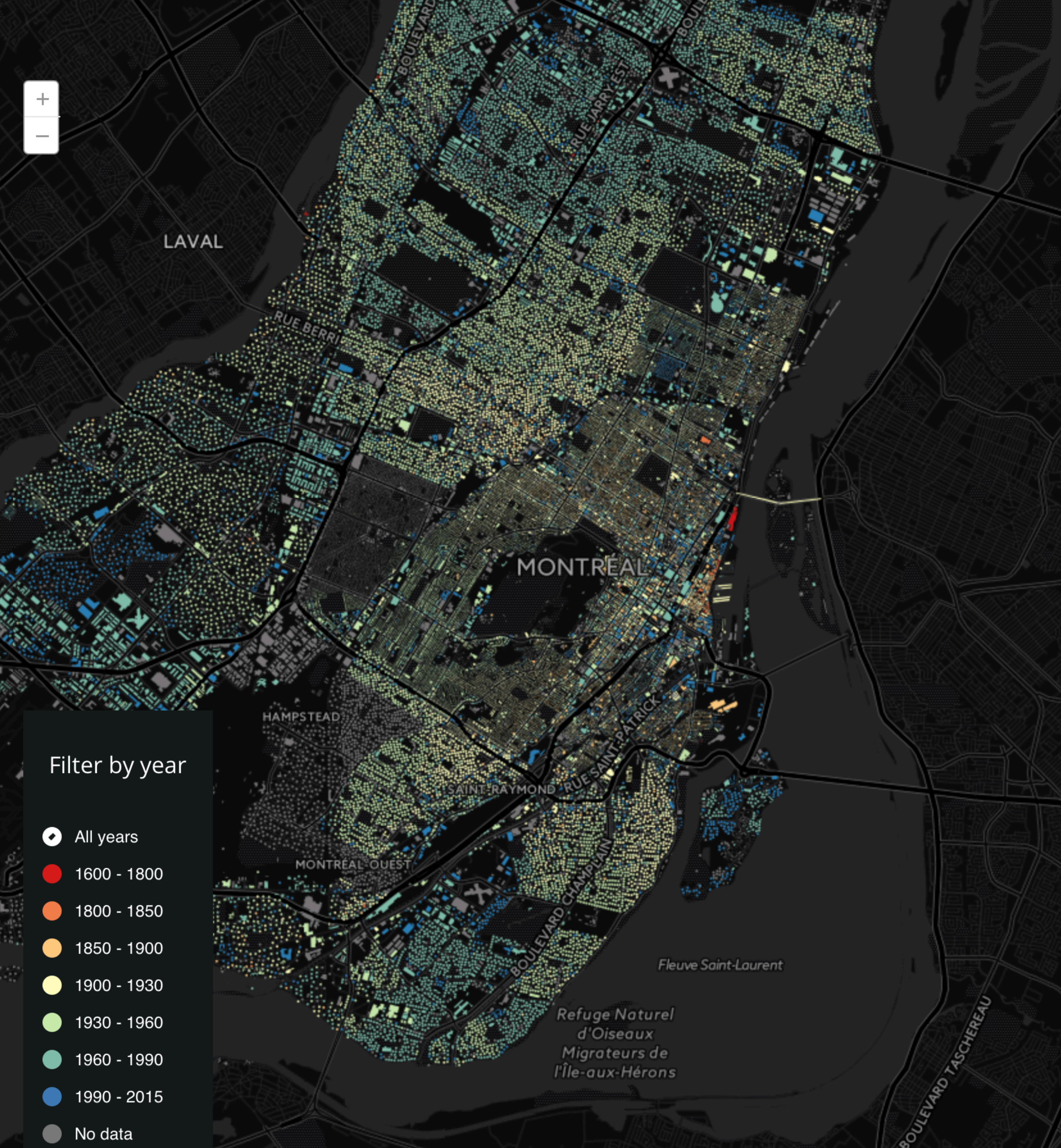
INTERACTIVE VISUALIZATION

Gun Deaths In America

By Ben Casselman, Matthew Conlen and
Reuben Fischer-Baum

CLICK to advance

➤ [Gun Deaths in America](#)



► Montreal is 375 years old, but how old are its buildings?

Montreal is 375 years old, but how old are its buildings?

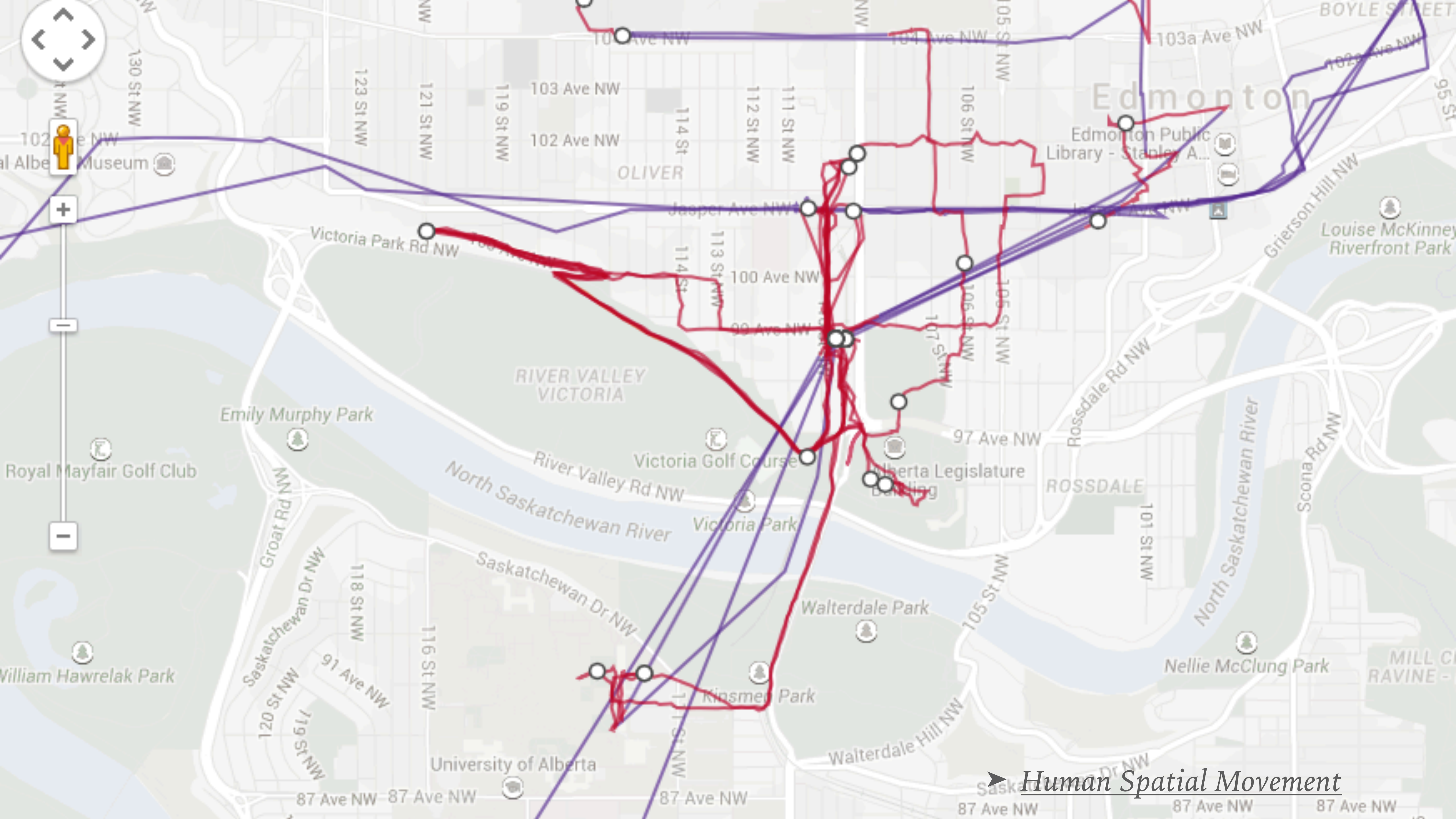
By Roberto Rocha

Montreal is celebrating its 375th anniversary, but very few vestiges of its early history remain. The number of standing structures from the time of Paul Chomedey de Maisonneuve and Jeanne Mance can be counted on two hands.

But 375 years is a long time, enough for dozens of styles and ways of thinking to rise and fall. And fortunately, we have preserved a little bit of each along the way.

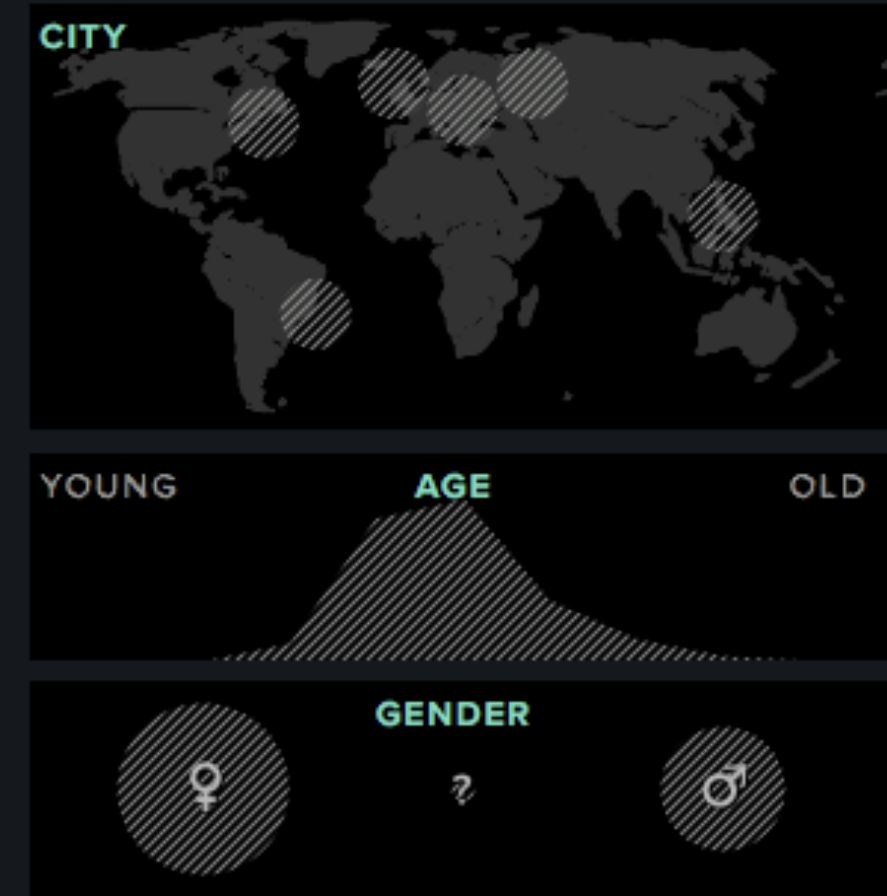
This map is an imperfect way to show that. It shows every building on the island coloured by its approximate year of construction. It's imperfect because it was cobbled together from various data sources, many of them incomplete ([read the FAQ to know more](#)).

We've also selected about 30 iconic buildings across the ages and asked two architecture experts to help us understand their value. Annmarie Adams is a professor in McGill University's School of Architecture, where she served as director from 2011 to 2015. Jacques Lachapelle is an architect and director of the School of Architecture at the Université de Montréal, where he has taught since 1982.

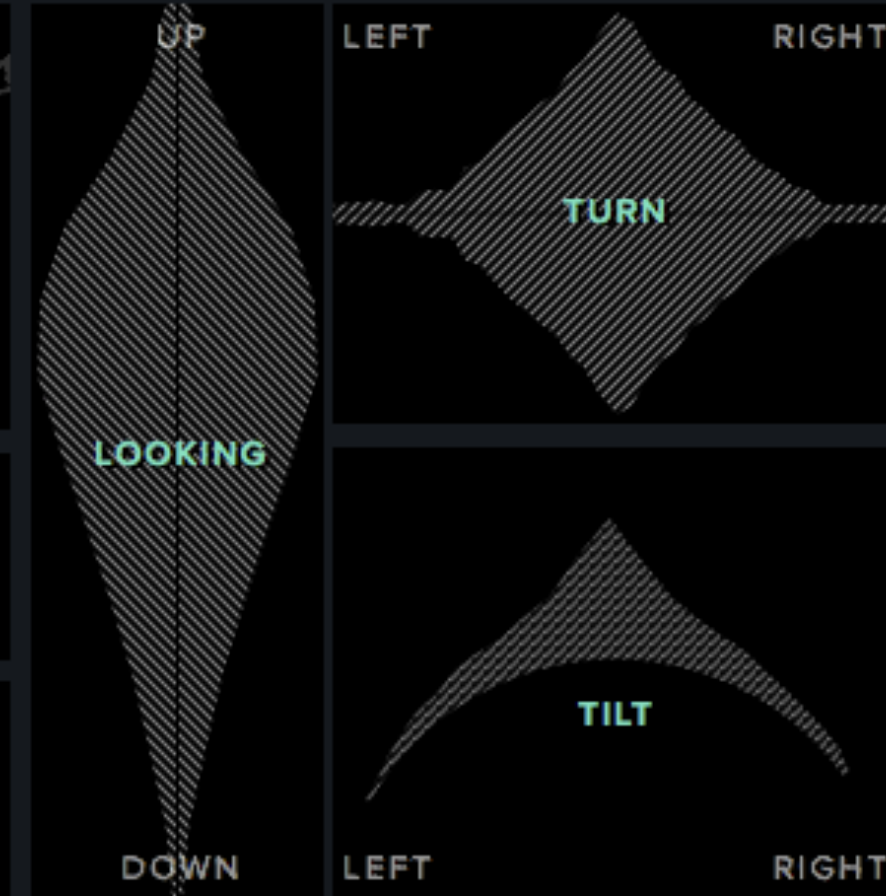


► Human Spatial Movement

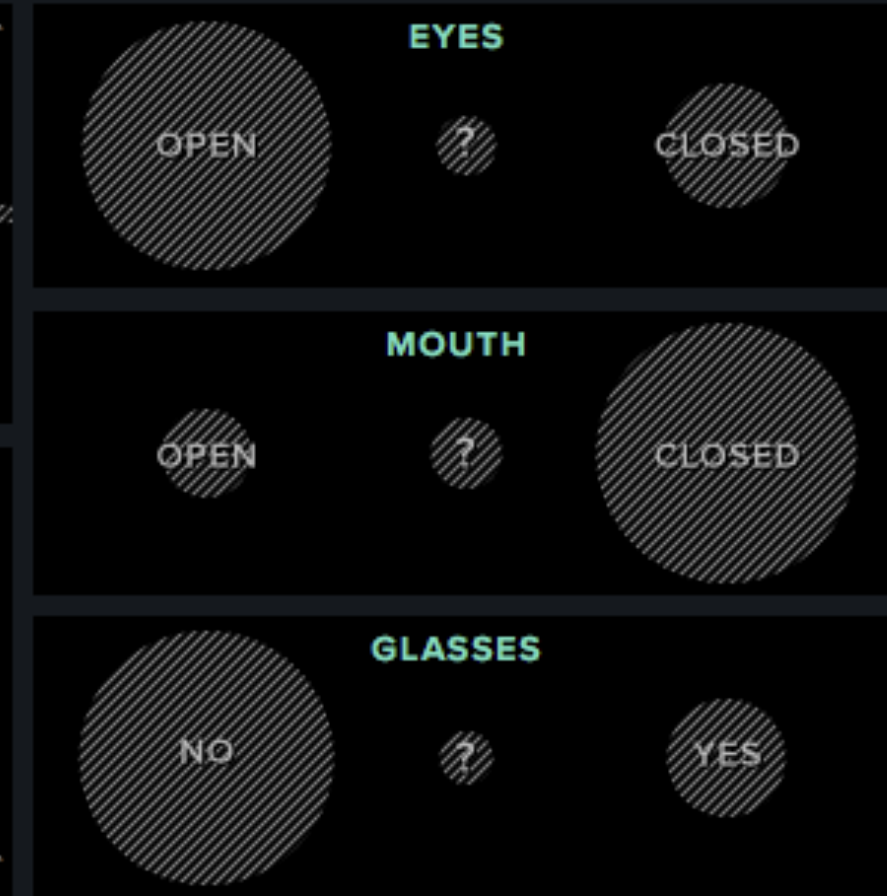
DEMOGRAPHICS



POSE



FEATURES



MOOD



3840 of 3840 selfies.







PARIS

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Low depth

Low snow at O'Hare
Flights canceled

Low on record since 1917
May 2

Ice storm

causing widespread
power outages that leave
hundreds of thousands
in the dark
December 22

Wettest April ever

with heavy rains storms
and multiple floodings
220 mm of rain in total,
135 mm above average

Heavy rains

Offshoots of the central China floods
kill 3 people in outer Beijing
July 6-7

TORONTO

Hottest September day

since 2002
34.1°C on September 10

Prolonged heat wave

Eleven straight days above 30°C,
including five days above 35°C,
averaging at 37.5°C
June 28 - July 8

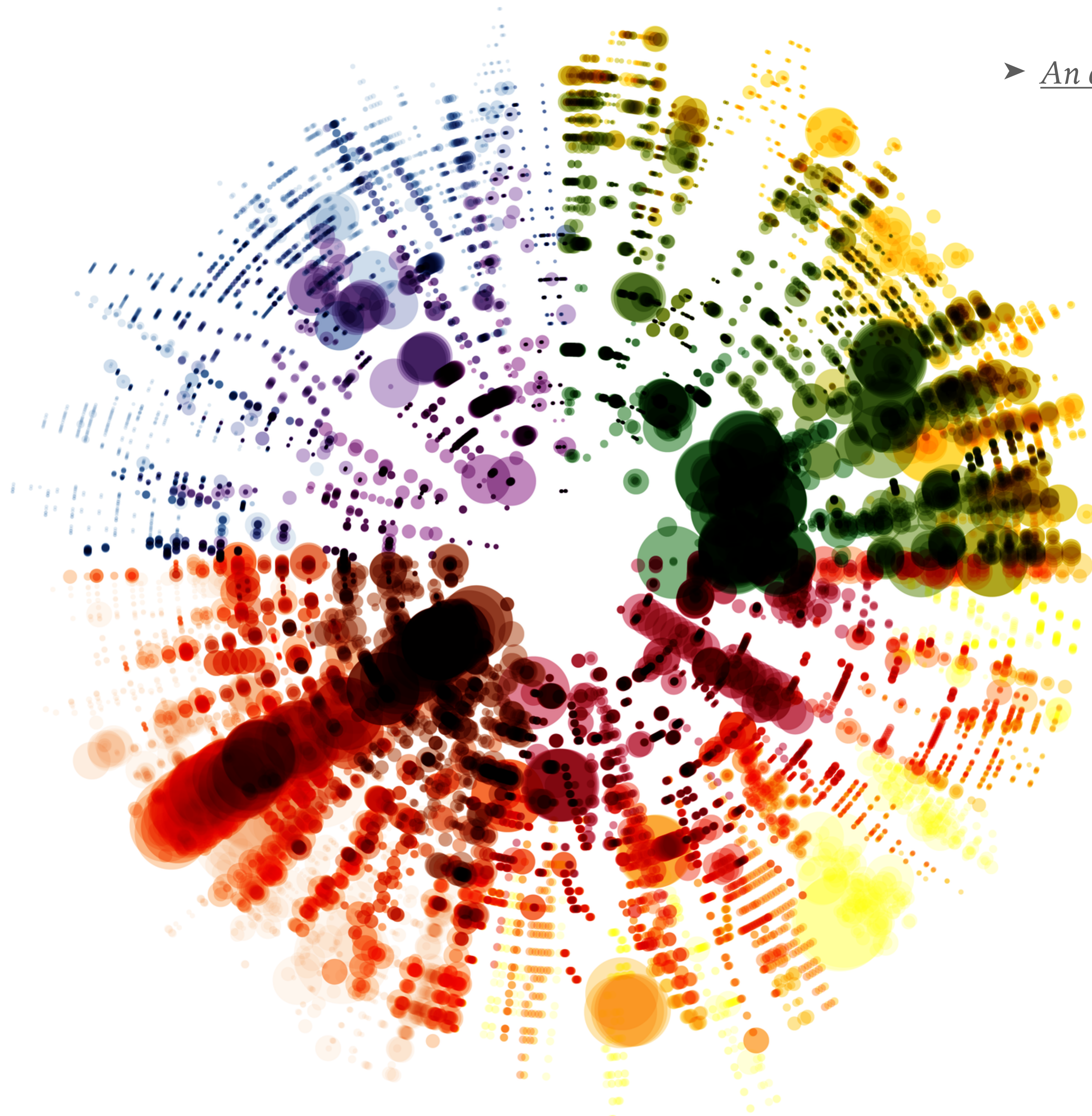
Flash floods

Flash floods sweep through Austin after
250 mm of rain fall in a 12-hour period,
closing roads and sparking rescues

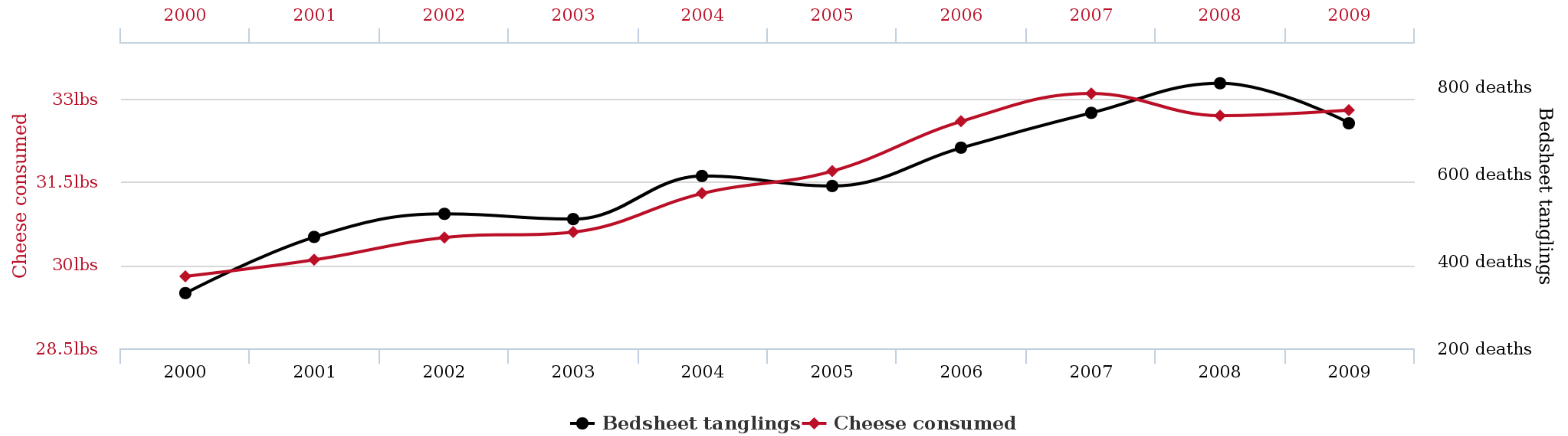
Tornadoes end late summer heat

The unusual August-like heat is
cooled off by massive rains and winds
October 6-7

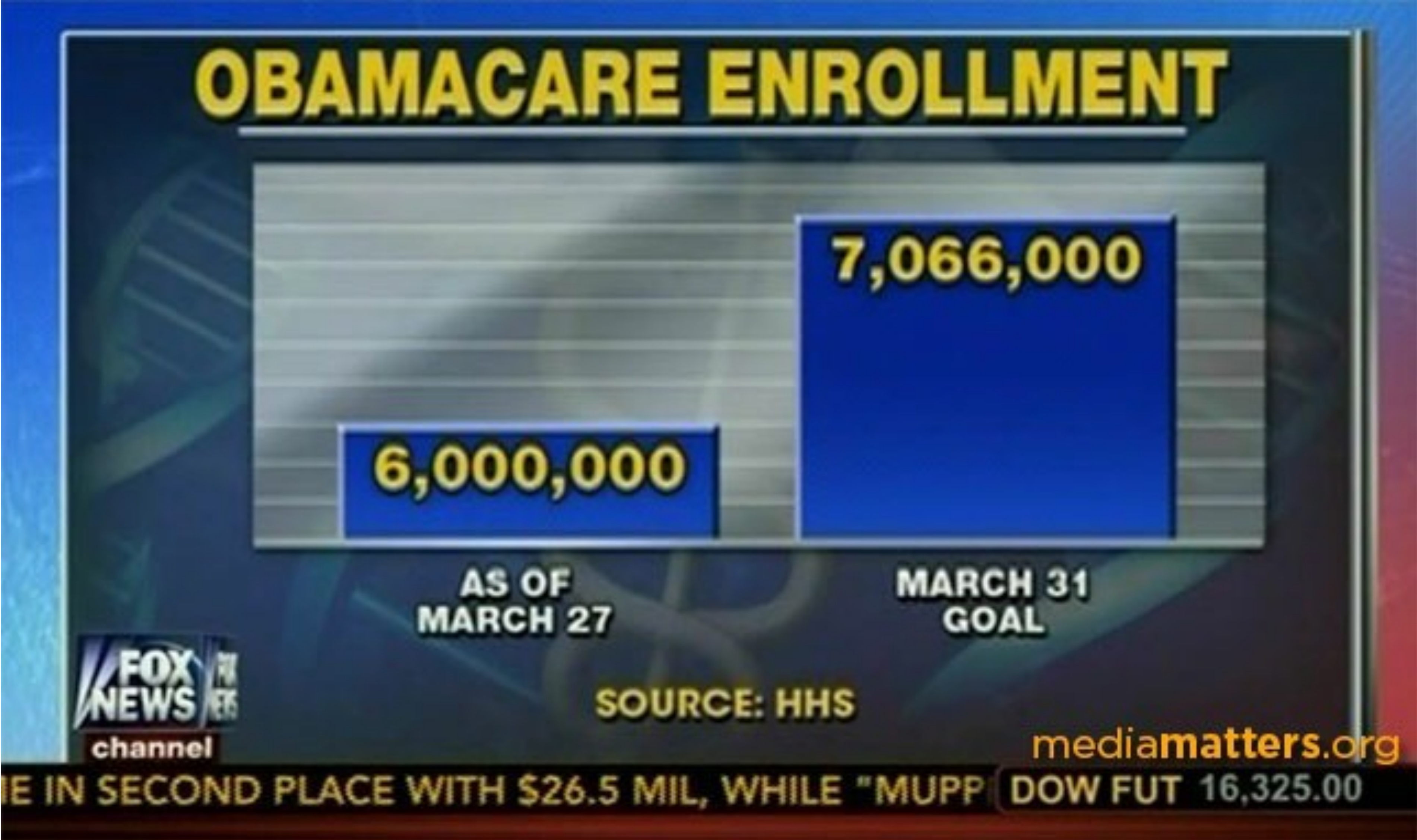
► An experiment in visualizing notes from music scores



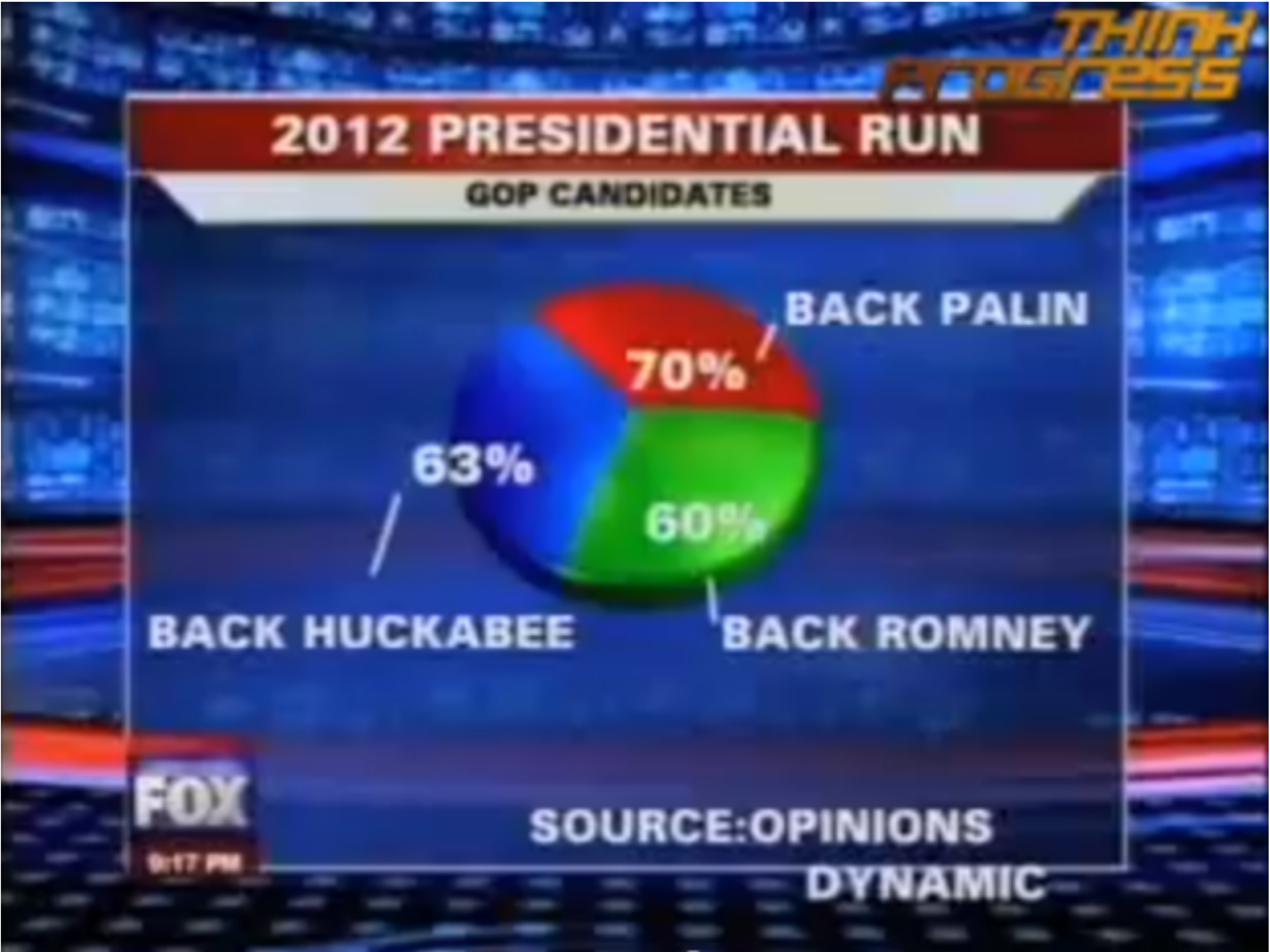
Per capita cheese consumption correlates with Number of people who died by becoming tangled in their bedsheets



BAD VISUALIZATION

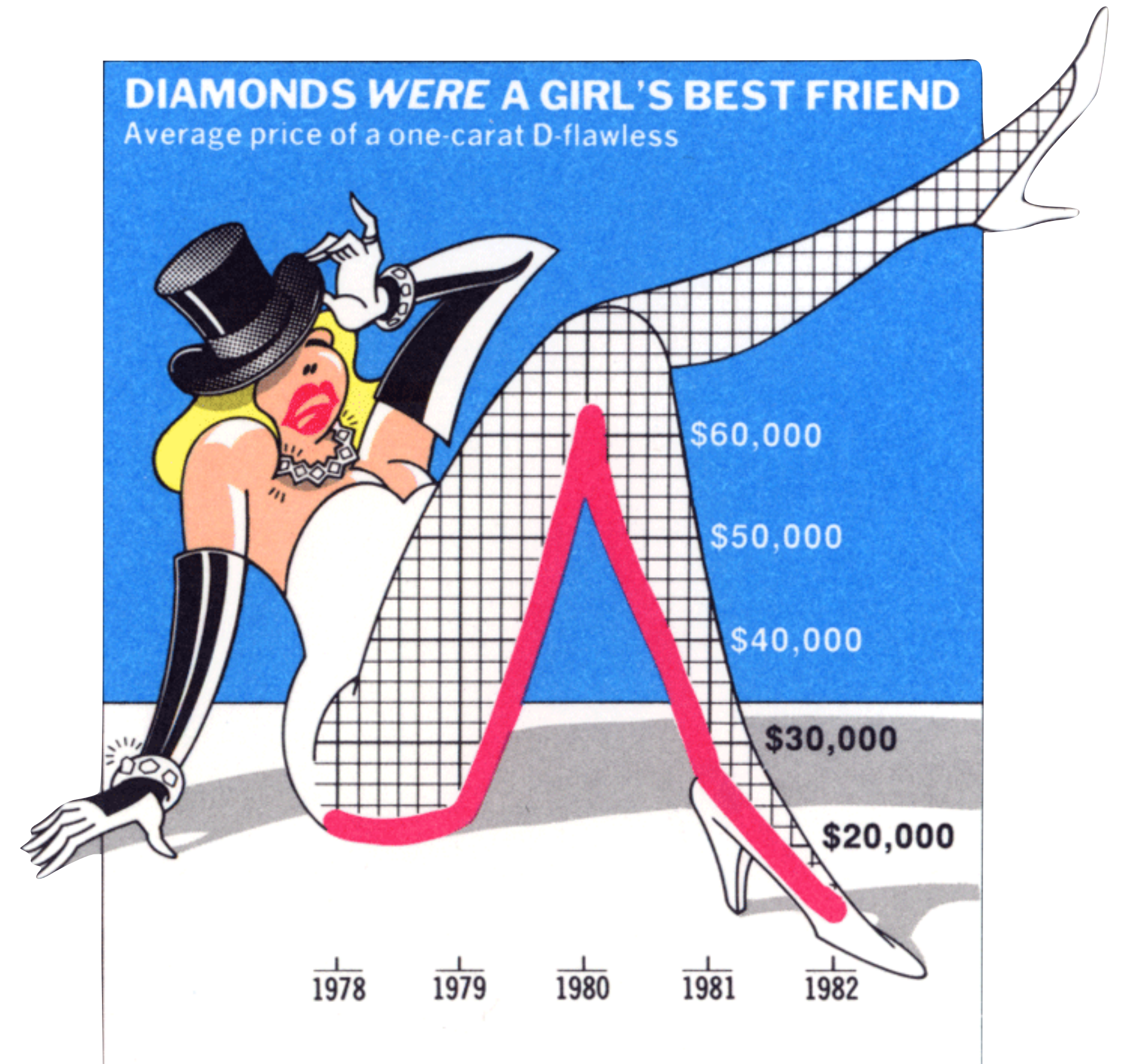
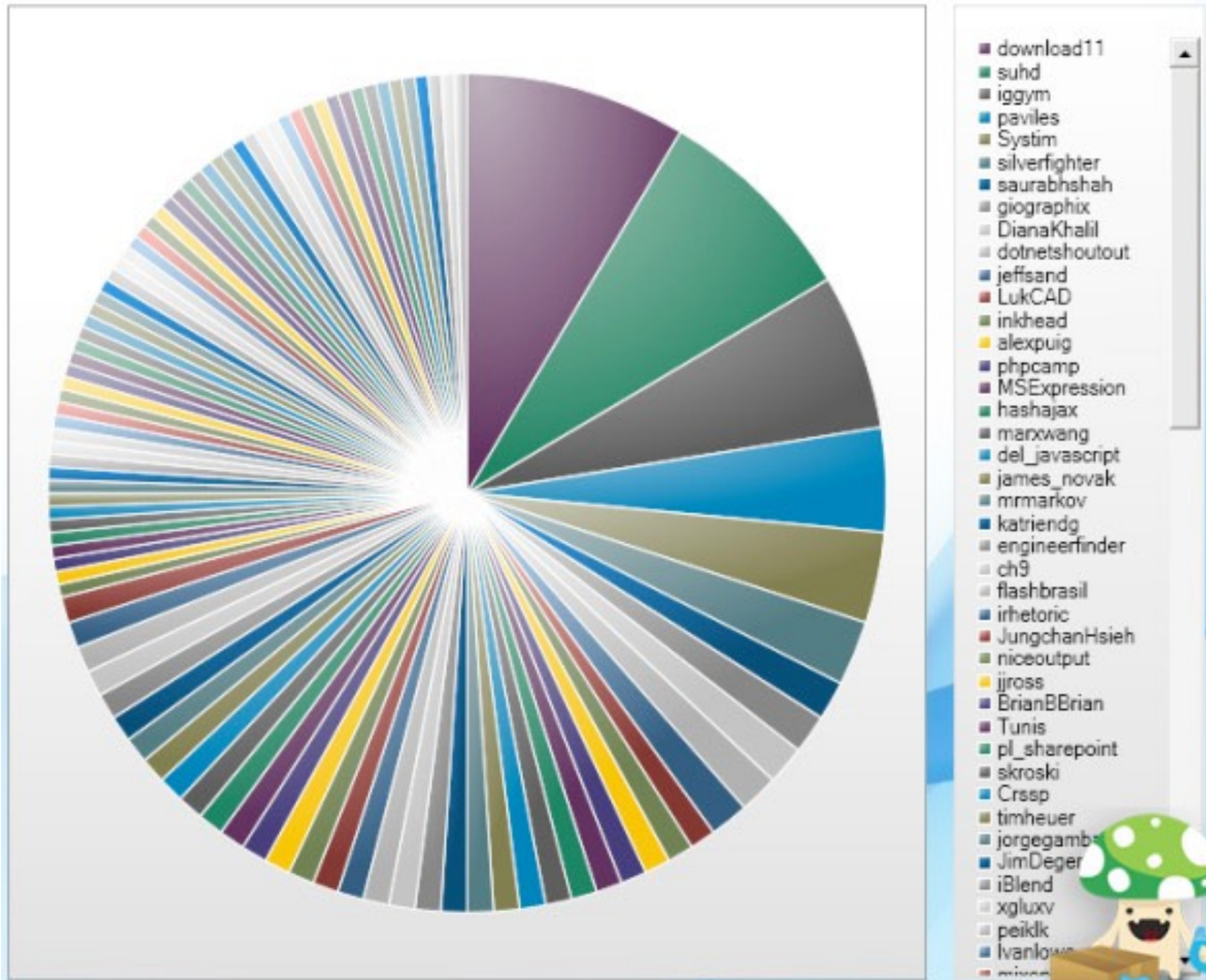


BAD VISUALIZATION



CHARTJUNK

100 Most Active Tweeters

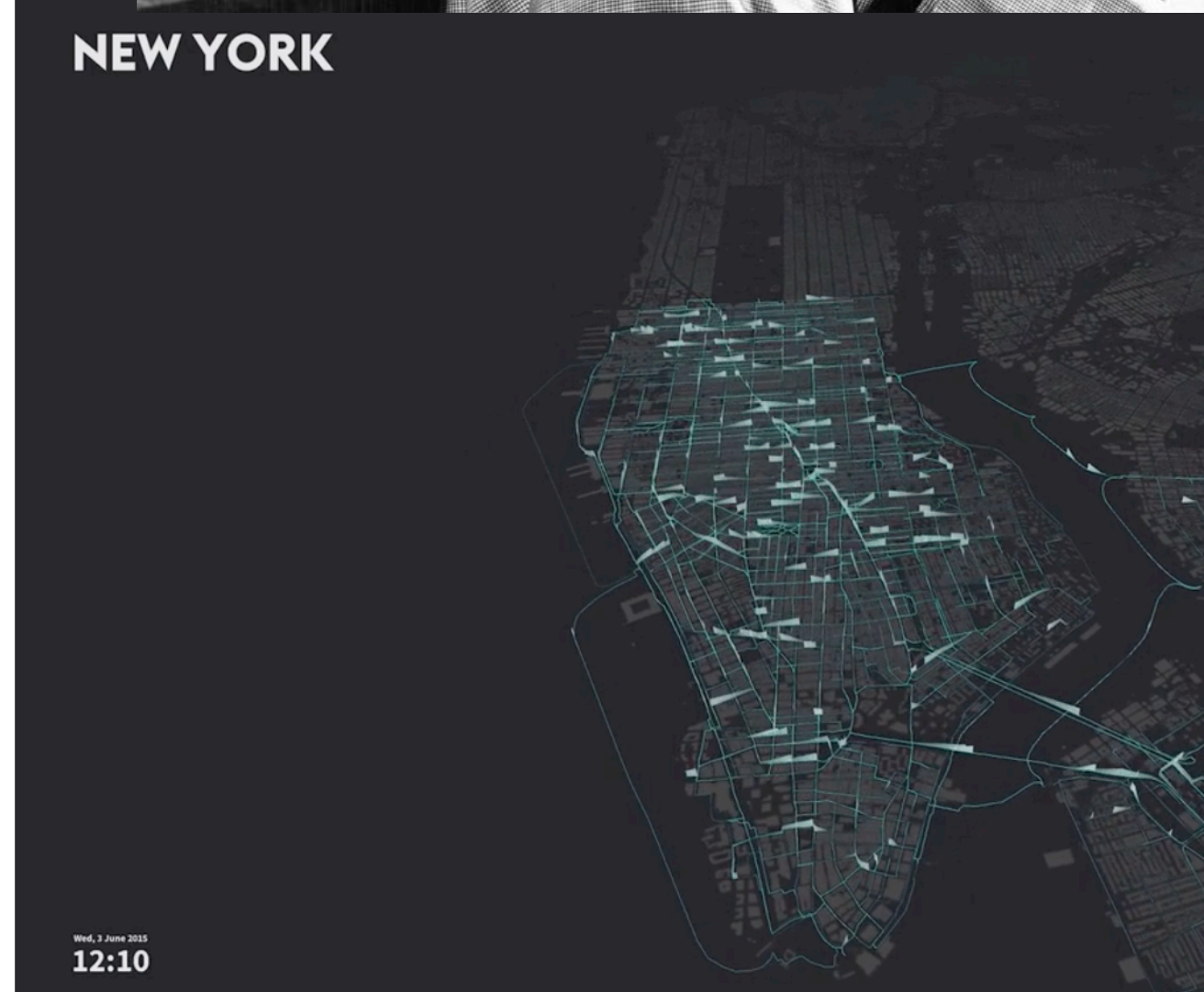
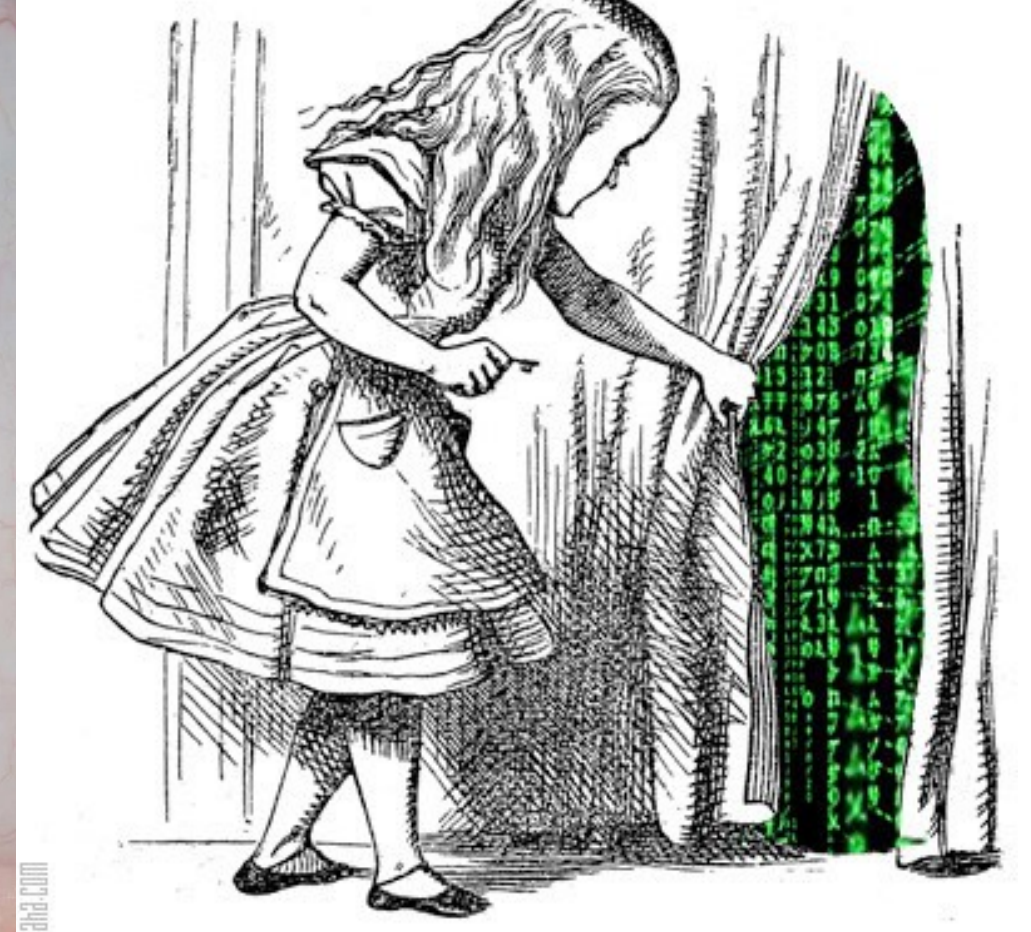


ACTIVITY

- Let's create our first hand-made visualization on paper.
- Groups of 4: 15 min
- Sketch a visualization (graphs, lines, bars, etc) to tell a story about Titanic.

IS IT THE END?





(SELF) – EVALUATION

- What did you like the most?
- What didn't work?
- What was missing from this class?
- What can I do to make this course better?
- What can you do to make this course better?

KEEP IN CONTACT



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THANK YOU





I SEE YOU AROUND