

DIY Cartography: Network Maps and Case Study Research

ADN592/ARC590: DIY Cartography
February 24, 2016

Based on the maps and annotations from project #1, write down a single research question that is at the core of your interests and findings.

What sort of data have you already collected? Quantitative and/or qualitative?

What other maps from Project #1 could you overlay on top of yours to gain more insight into this topic?

Share research questions.

Ex: How was the railroad developed in Raleigh?

Can you visualize how you would go about collecting information on that topic? What type of quantitative information might you collect? What about qualitative?

Revise Research Question.

Ex: How did politics affect the development of the railroad in early Raleigh?

Can you visualize more specifically how you might go about collecting information related to this question?

Project #2: Network Maps and Case Study Research.

For this project, you are going to create a network of relationships regarding Raleigh's development. This can be both historical and contemporary.

You should be more specific in your study and in your content. Within each person's research, this level of specificity will vary.

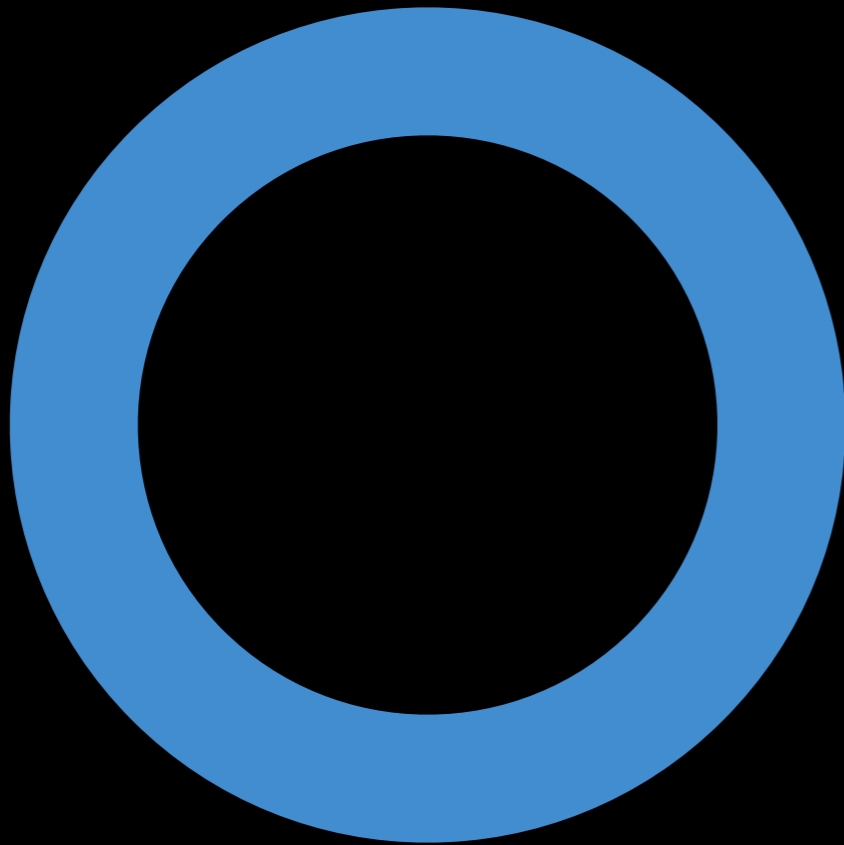
The range and scope of the information will also vary according to the topic of research. The goal of this project is to look deeply into something that has contributed meaningfully to Raleigh's growth — politically, socially, economically, physically or naturally.

Categorizing Relationships

In the Chapter on Spatial Maps, Merriell identifies three basic methods for organizing information.

- Nominal (A is different from B)**
- Ordinal (A is bigger than B)**
- Quantitative (A = 50; B = 25)**

Nominal

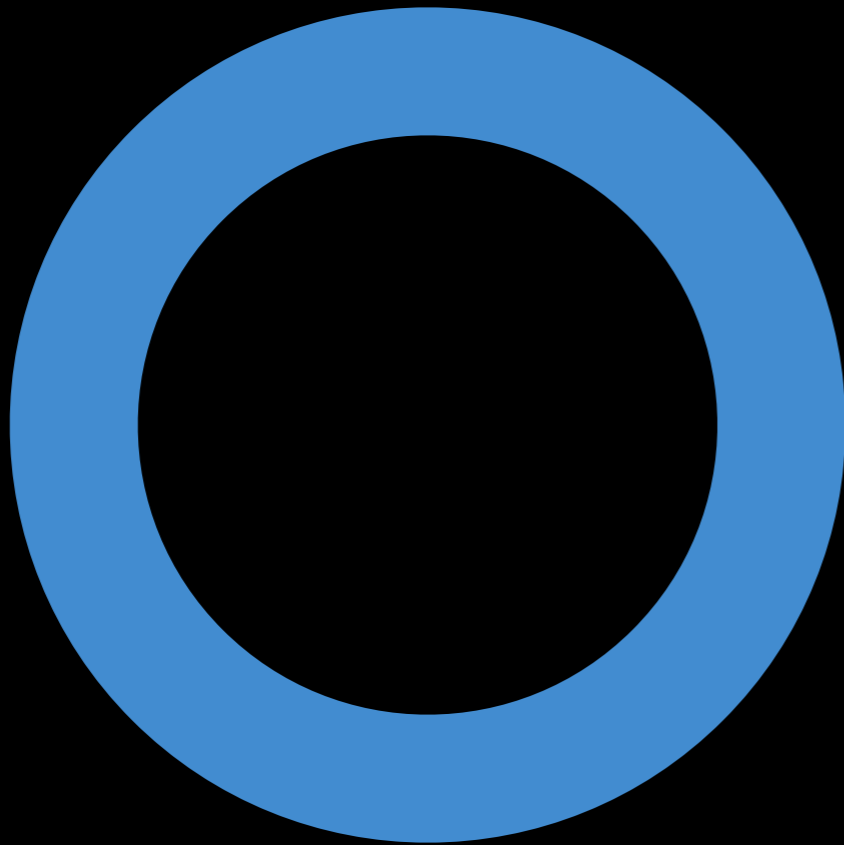


Democrat



Republican

Ordinal

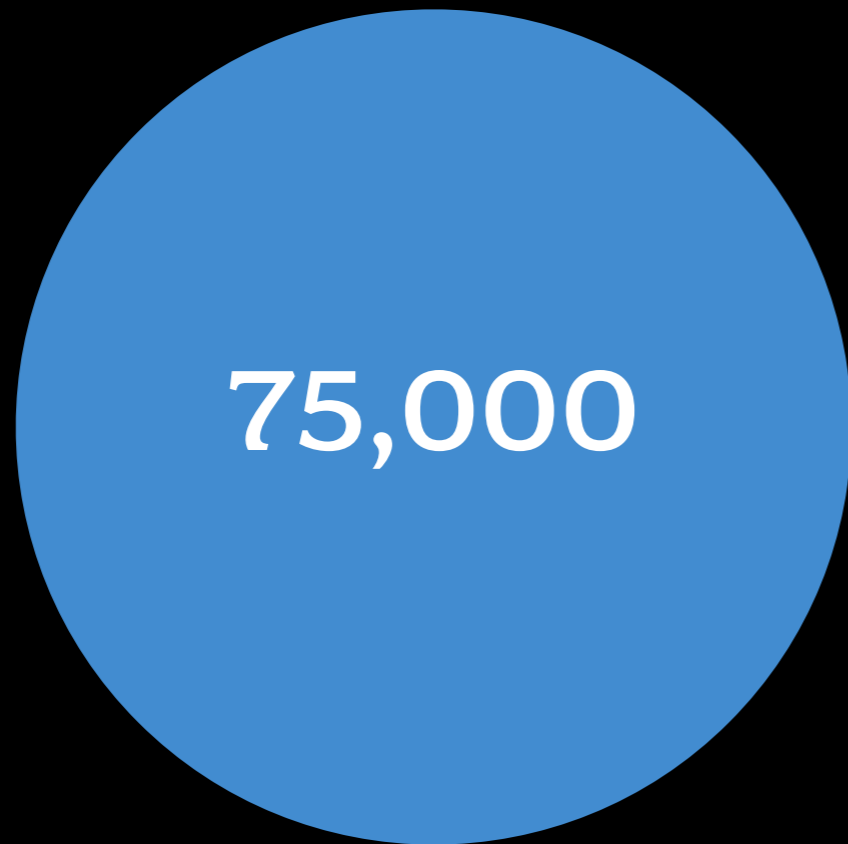


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Quantitative

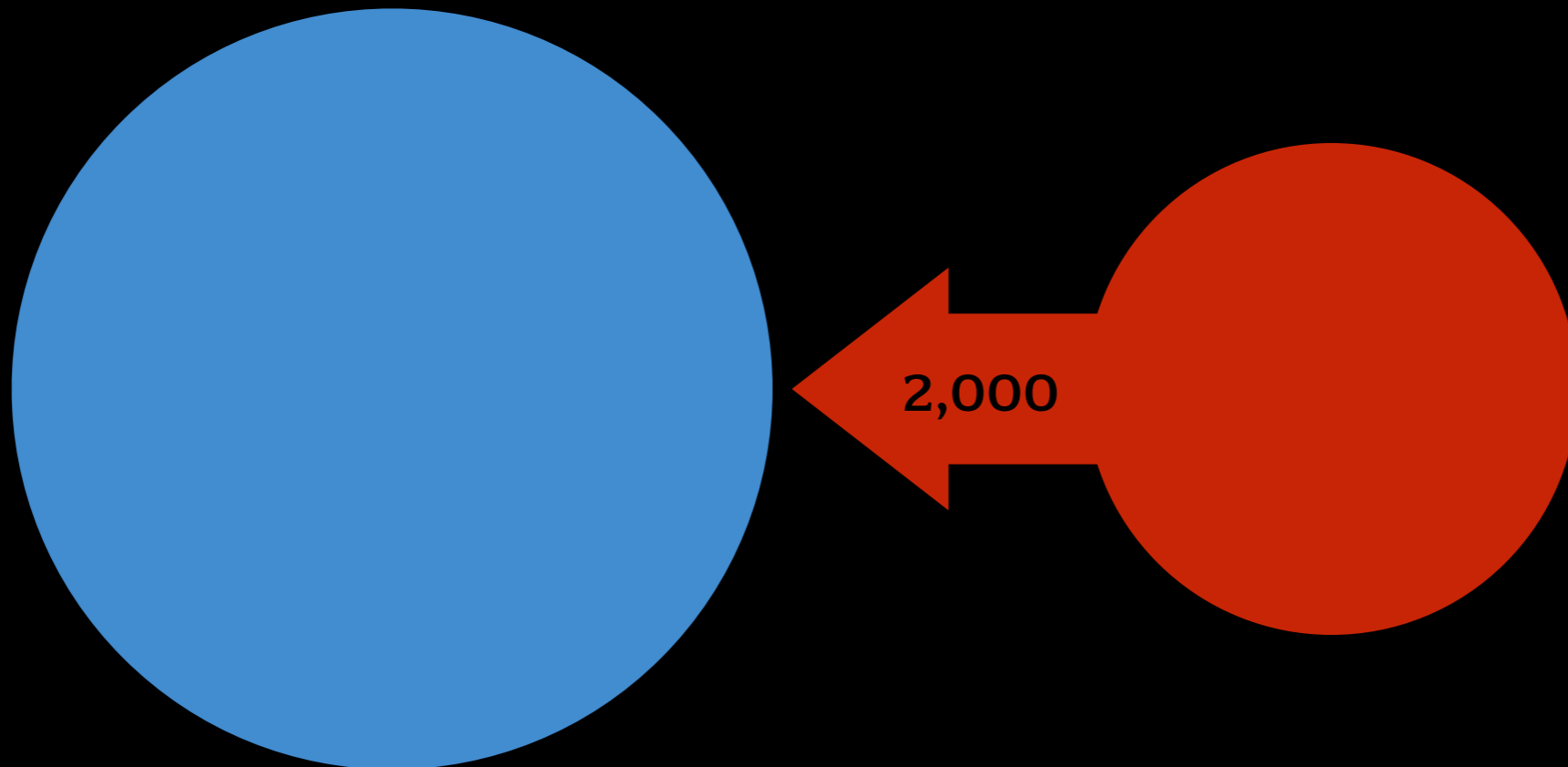


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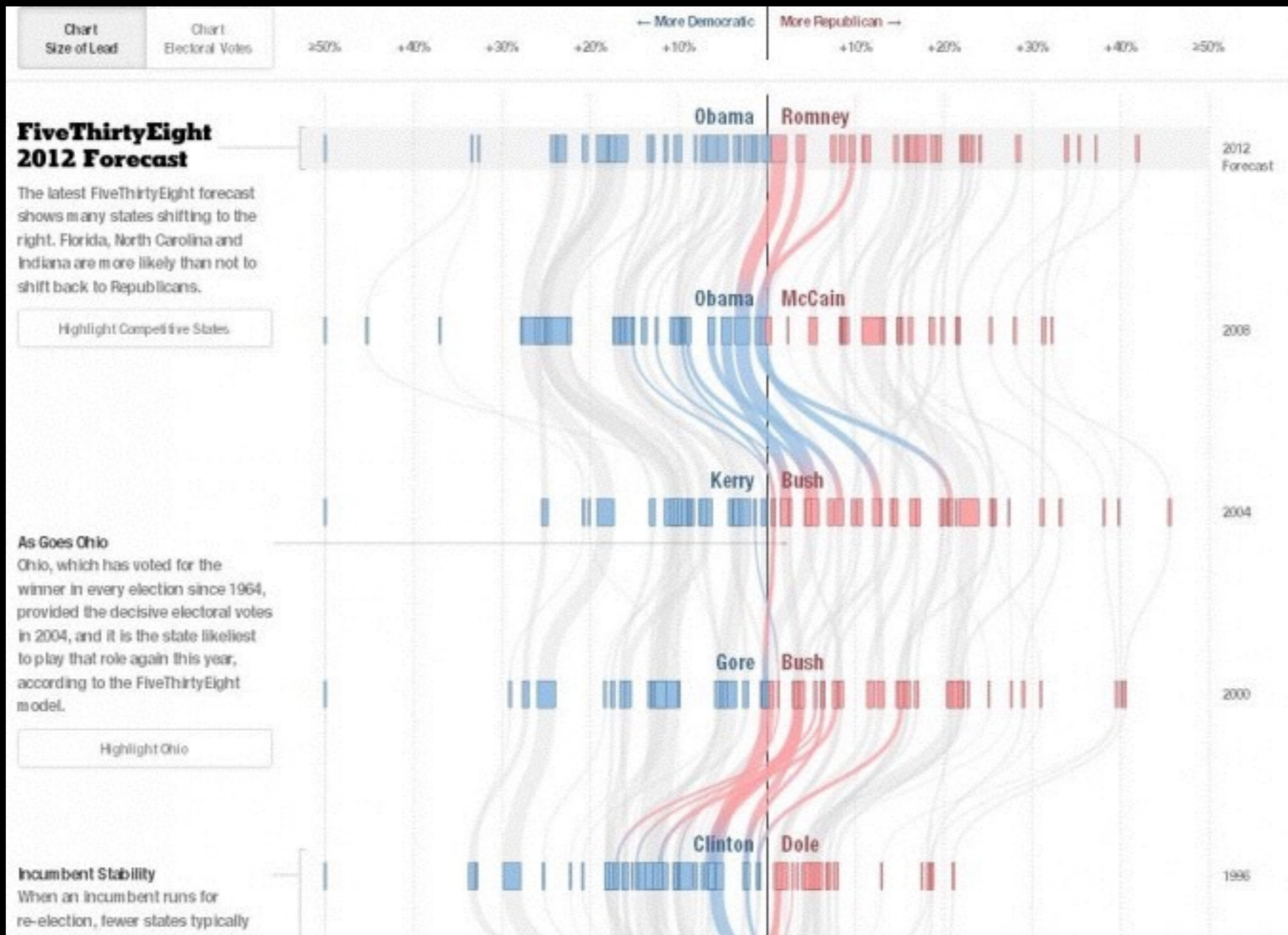
Republican

Relational

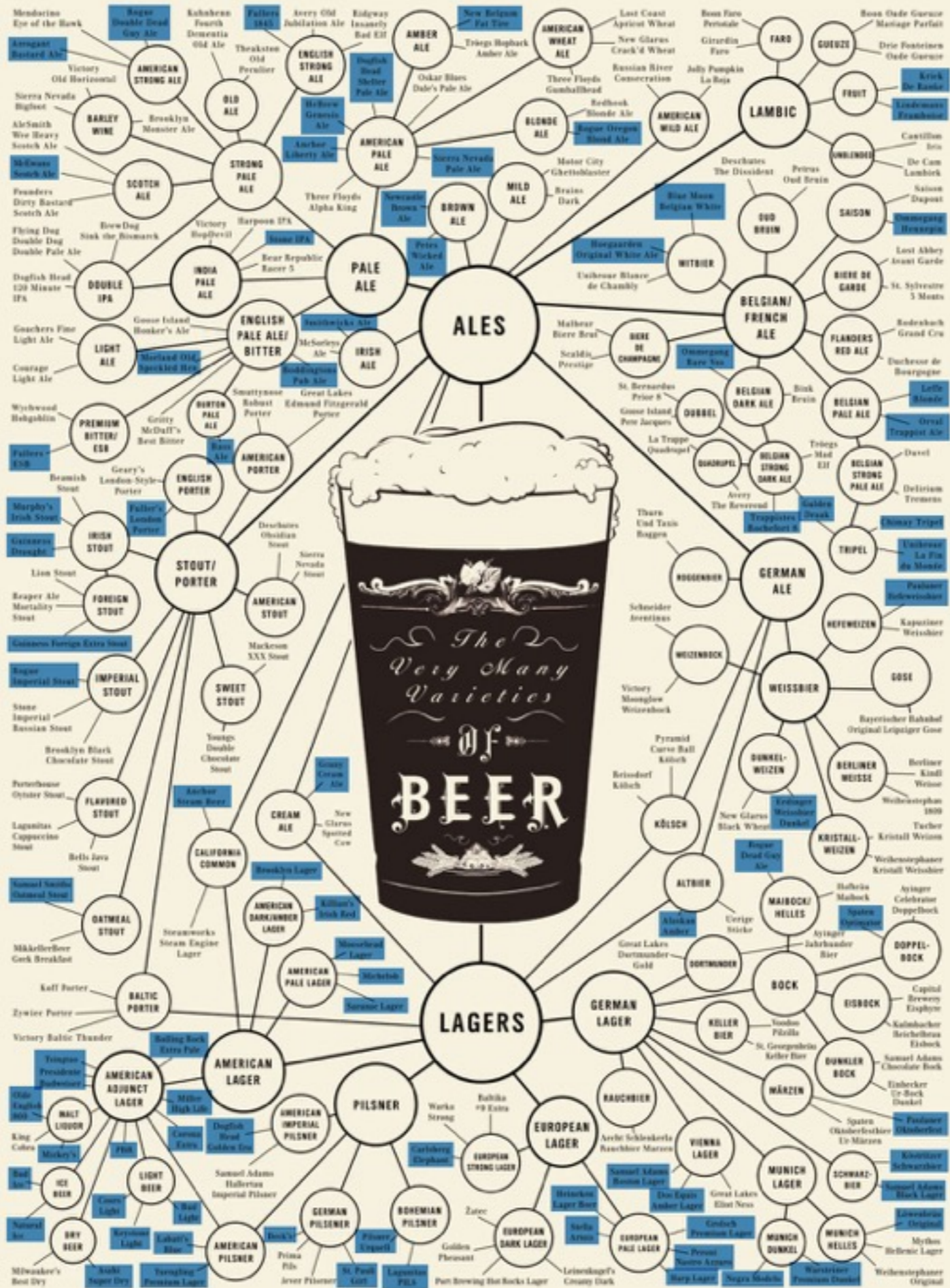


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Mike Bostock, Shan Carter, Amanda Cox: "Over the Decades, How States Have Shifted," *The New York Times*, 2012

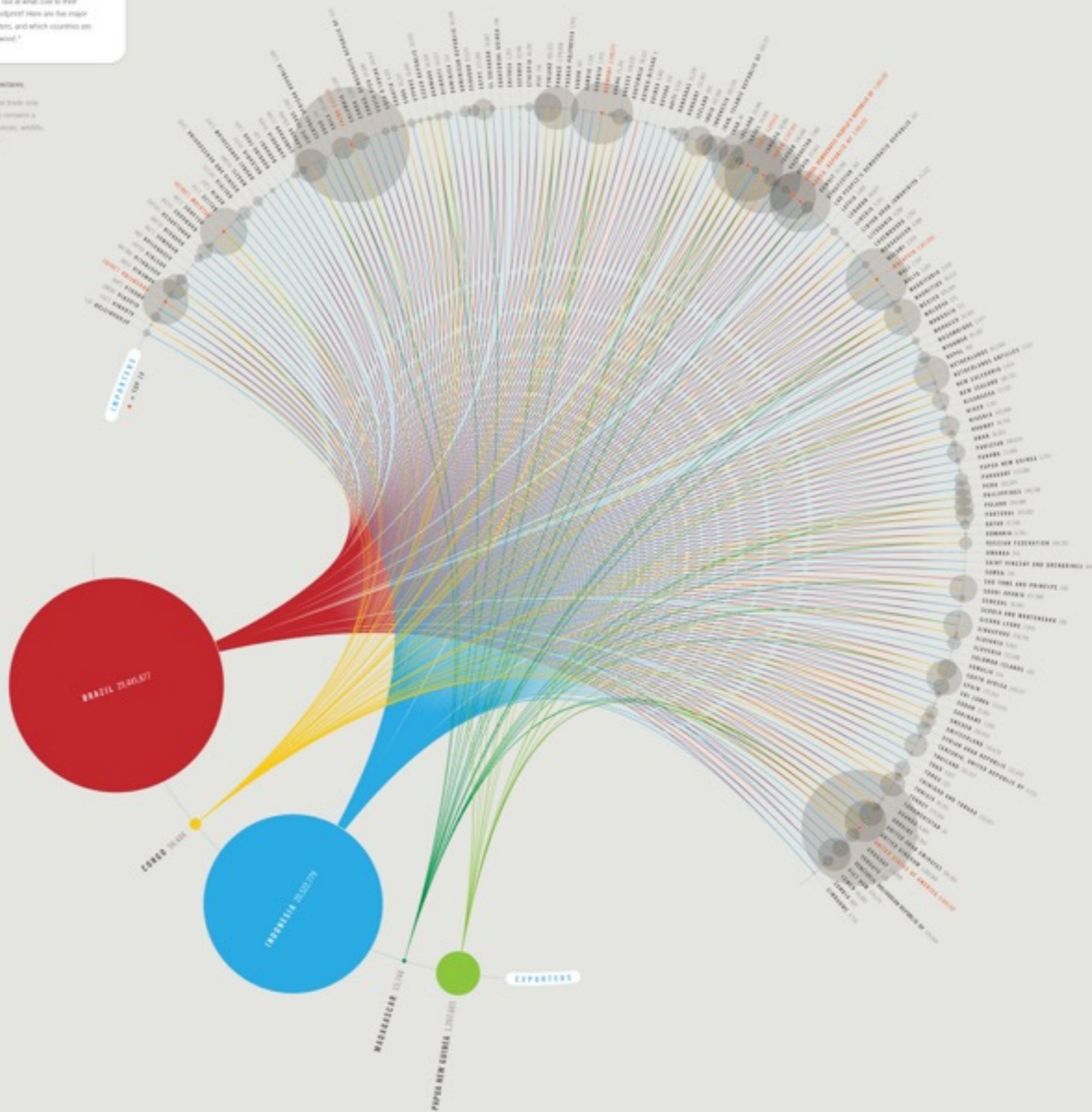


THE TIMBER TRADE

In this high-tech world of metal and plastic, it's easy to forget that many things are still made with good, old-fashioned wood. Countries with lots of forest stand to benefit from the lucrative timber trade, but at what cost to their Ecological Footprint? Here are the major timber exporters, and which countries are buying their wood.*

Figures in global tonnes.

*Figures show legal trade only. Illegal timber trade remains a serious threat to forests, wildlife, and communities.



Crazy market bubbles

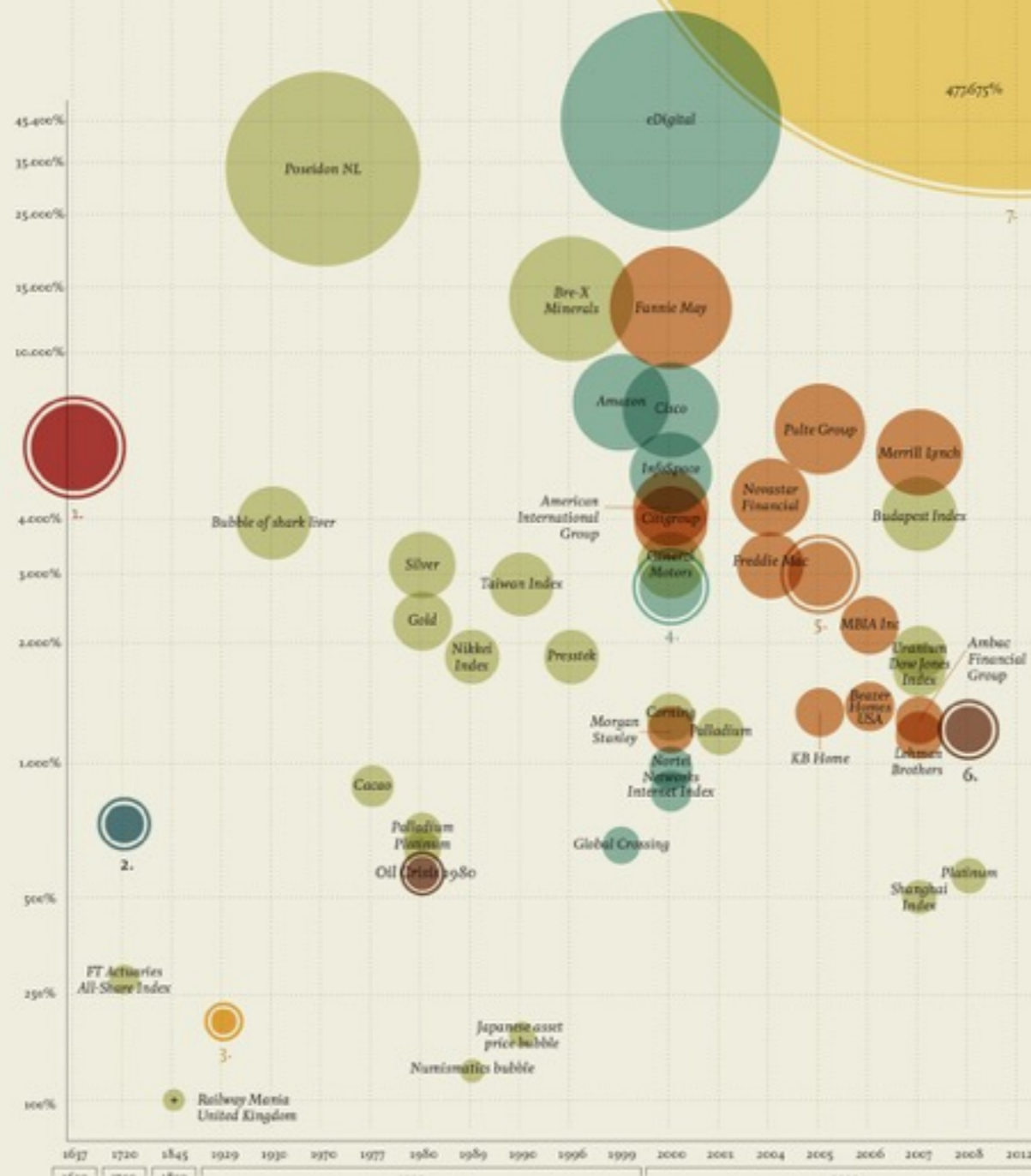
The visualisation explores the main speculative 'bubbles' from the 15th Century to the present, demonstrating their true economic impact.

How to read it?

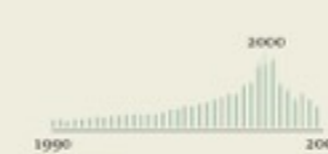
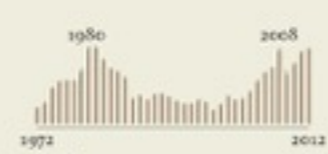
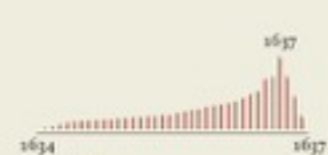
The 3 phases of a market bubble:
 A- Accumulation, moderate rise with stock increase;
 B- Bubble, exponential growth of the stock/price in virtue of new capital or of externalities in the reference market;
 C- Burst, fall of the stock/price, loss of invested capital, collapse of the volumes of the reference market.



Colors: 7 clusters (bubble groups), which represent bubbles related from common causes.
 Trends highlighted in left column.
 Cluster (red circle)
 Singular bubble (yellow circle)



- Tulip Mania 1637**
1635
300 florins: average cost of accommodation in Amsterdam
1637
5.200 florins: maximum cost of a tulip
1642
1.600 florins: payment Rembrandt received to paint «The night watch»
- South Sea Company 1720**
1720
£20.000 sterling: sum Sir Isaac Newton lost buying shares from South Sea.
He said: «I can measure object dynamics, not human folly»
- Indu Index 1929**
24 October 1929 (Black Thursday)
\$14 billion dollars: value lost by New York Stock Exchange equal to 10 times annual budget of federal government
- Nasdaq-100 Index 2000**
2000-2001
\$2 million dollars: cost of a 30-second commercial during SuperBowl 2000
27 dotcom commercials aired during SuperBowl 2001
3 dotcom commercials aired during SuperBowl
- S&P Homebuilders Index 2005**
2008
765.000 thousands: US houses distressed only during July, August and September
- Oil crisis 2008**
2008
159 liter: oil contained in a drum
\$148 dollars: price per drum in July
1,52 euro: price in Italy of one liter of oil in July
- Greek Sovereign Debt 2012**
2012
1.000 billion euro: cost for EU in case of exit of Greece from euro

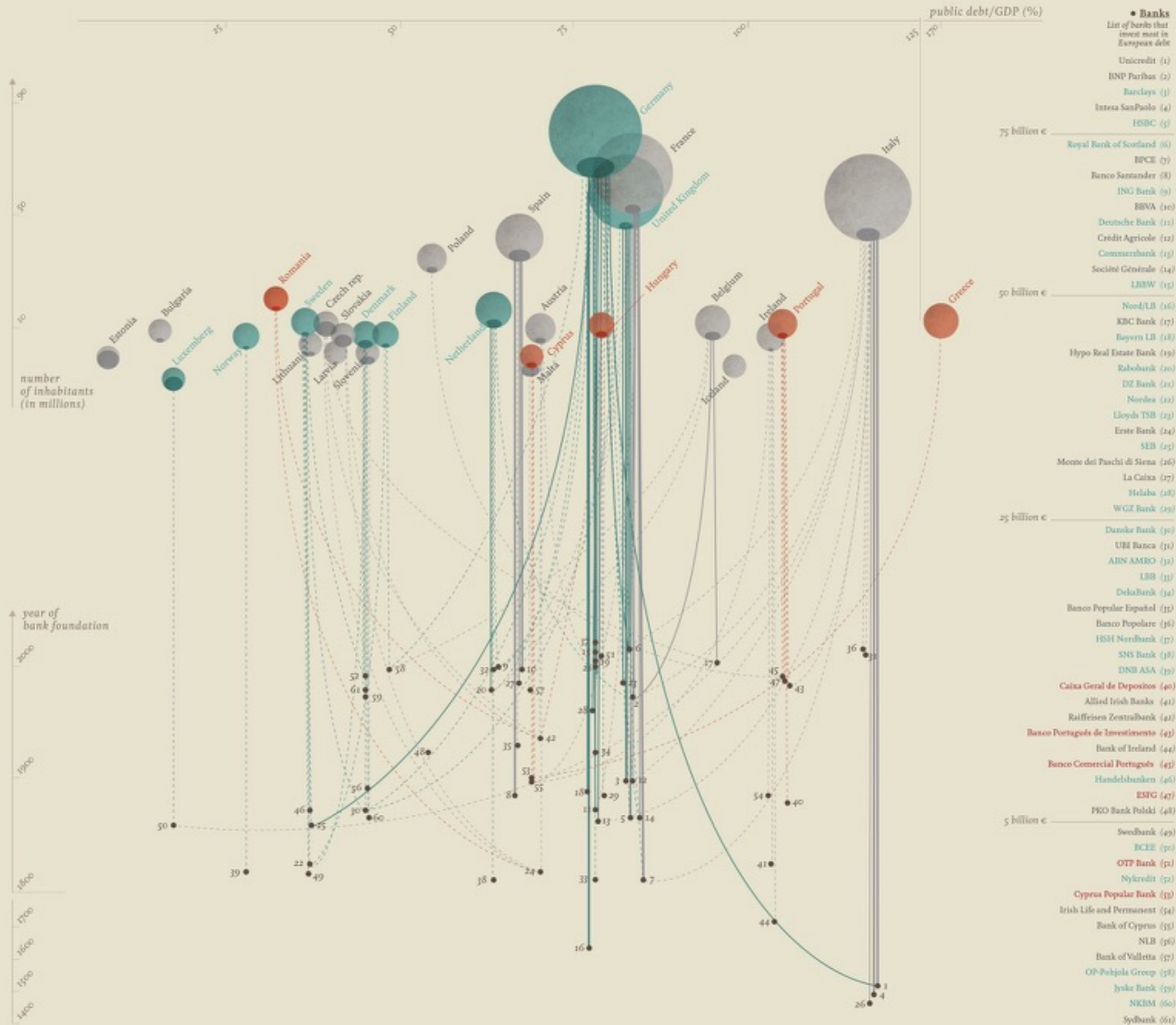


European banks and government debt

The visualisation compares the sovereign debt exposure of sixty-one European banks to the twenty-nine nations of the old continent. Each bank is positioned on the perpendicular according to the country of origin, and from the bottom upwards, based on the year of foundation (Monte dei Paschi being the oldest). The flow and quality of debt investment in the various states is displayed for each bank. The countries are arranged from left to right according to the internal relationship between public debt and GDP, and from the bottom upwards based on the growing number of inhabitants.

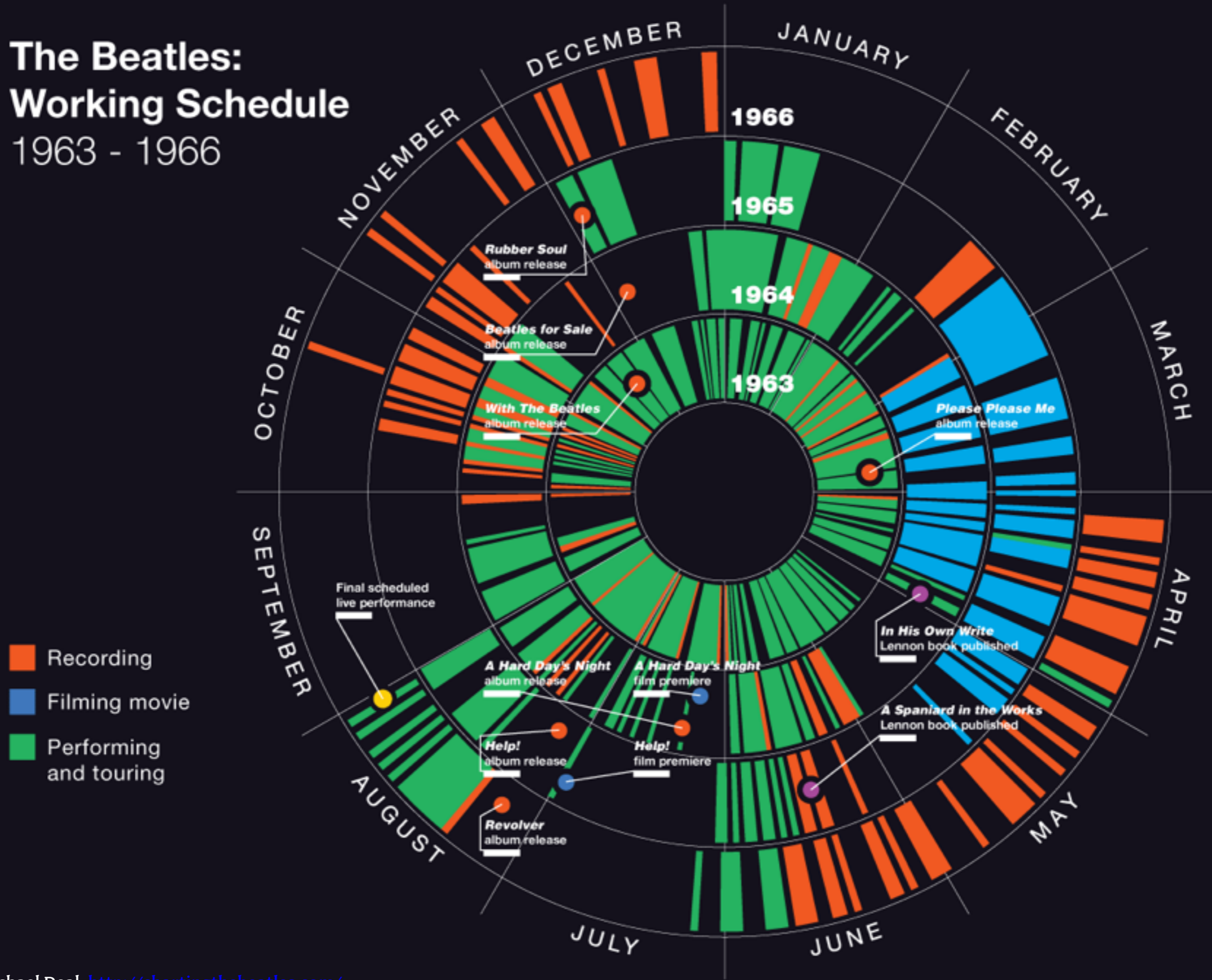
Sources: The Guardian, Eurostat (Ue), Business Week.
The data refers to the years 2011 and 2012

How to read it?



- Banks
- List of banks that invest most in European debt
- Unicredit (1)
- BNP Paribas (2)
- Barclays (3)
- Intesa SanPaolo (4)
- HSBC (5)
- Royal Bank of Scotland (6)
- BPCE (7)
- Banco Santander (8)
- ING Bank (9)
- BBVA (10)
- Deutsche Bank (11)
- Crédit Agricole (12)
- Commerzbank (13)
- Société Générale (14)
- LEB (15)
- Nord/LB (16)
- KBC Bank (17)
- Bayern LB (18)
- Hypo Real Estate Bank (19)
- Rabobank (20)
- DZ Bank (21)
- Nordea (22)
- Lloyds TSB (23)
- Erste Bank (24)
- SEB (25)
- Monte dei Paschi di Siena (26)
- La Caixa (27)
- Helaba (28)
- WZB Bank (29)
- Danske Bank (30)
- UBI Banca (31)
- ABN AMRO (32)
- UBS (33)
- DekaBank (34)
- Banco Popular Español (35)
- Banco Popolare (36)
- HSH Nordbank (37)
- SNS Bank (38)
- DNB ASA (39)
- Caixa Geral de Depósitos (40)
- Allied Irish Banks (41)
- Raiffeisen Zentralbank (42)
- Banco Português de Investimento (43)
- Bank of Ireland (44)
- Banco Comercial Português (45)
- Handelsbanken (46)
- ESFG (47)
- PKO Bank Polski (48)
- Sveabank (49)
- BCEE (50)
- OTF Bank (51)
- Nykredit (52)
- Cyprus Popular Bank (53)
- Irish Life and Permanent (54)
- Bank of Cyprus (55)
- NLB (56)
- Bank of Valletta (57)
- OP-Pohjola Group (58)
- Jyske Bank (59)
- NKBM (60)
- Sydbank (61)

The Beatles: Working Schedule 1963 - 1966



Based on your research question, what are some categories that you would start to ascribe to these topics (nominal)?

What hierarchy / difference in importance might you ascribe (ordinal)?

Is there any quantitative data (or numbers) that you might find? What is that?

Look at the list.

Take a look at the historical events that we have assembled for you.

How are they aligned with the categories and hierarchies that you just identified?

How are other events aligned?

Case Study Research

This entire class is essentially using case study research. *Why would we say that?*

Crouch and Pearce outline 3 types of case study research:

- Intrinsic
- Instrumental
- Collective

Intrinsic: Trying to understand a very specific case more deeply. Intent not to generalize from the case but to understand the particularities of the case better.

Instrumental: Trying to understand something outside of the case by looking at a particular phenomenon within the case itself. Helping us understand something about a topic by looking at a case that is similar or different from the phenomena.

Collective: Intention is to explore
“different aspects of the same issue” by
studying a series of cases.

Triangulation and Mixed Methods

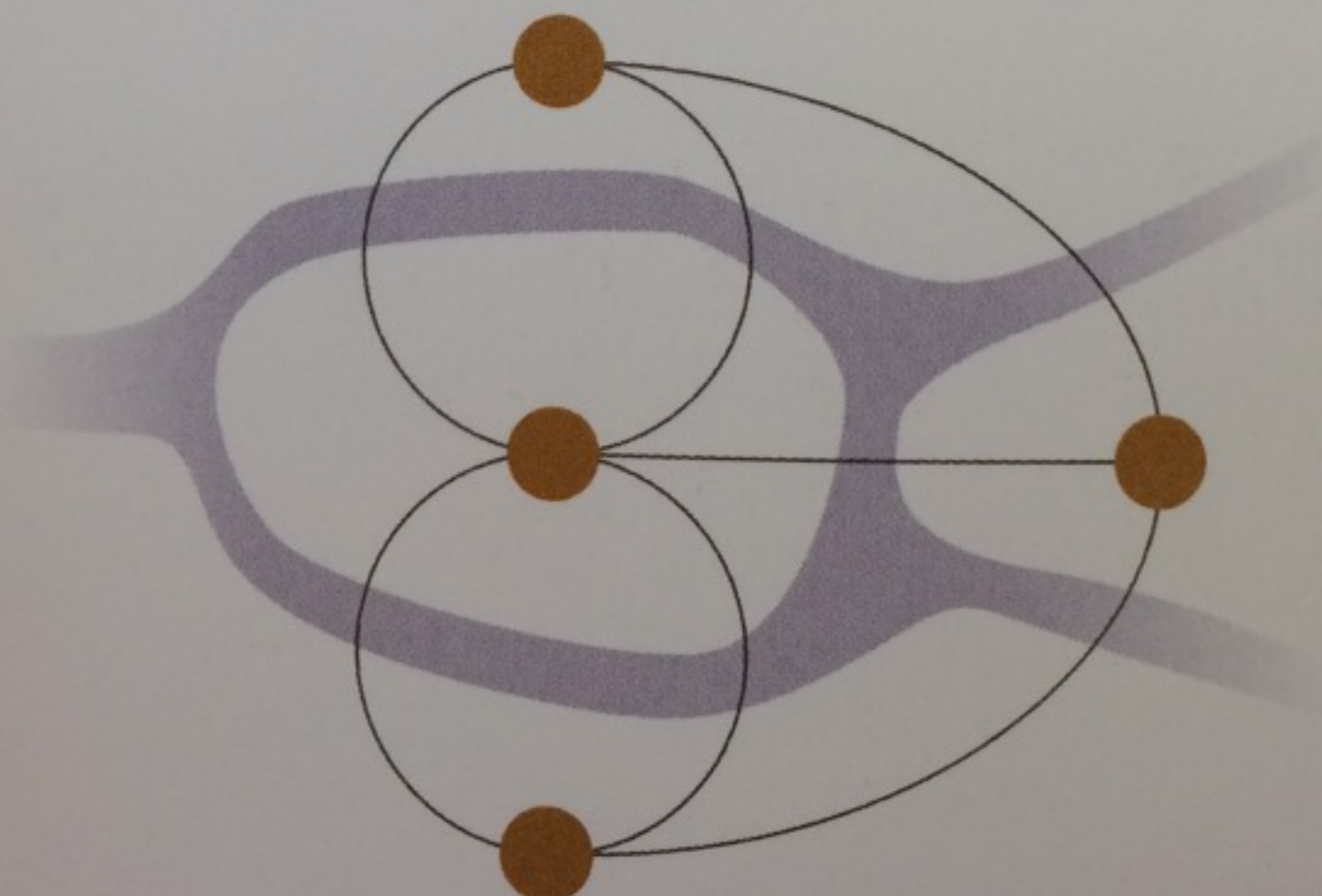
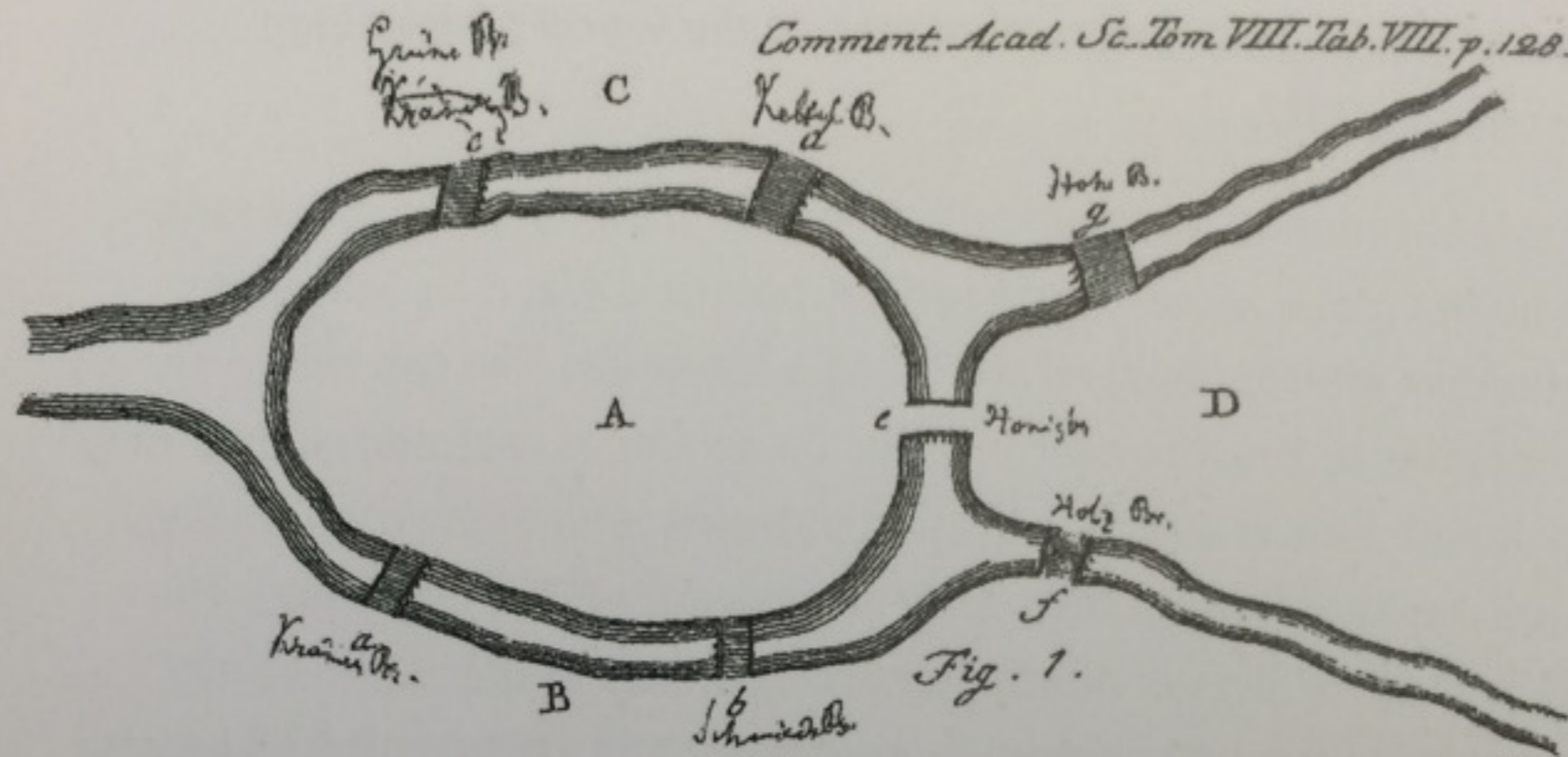
Why are these used often in case study research?

Why would they be of particular benefit in this research type/scope?

For next week:

Do 3 schematic maps using line weight, scale, color that use these categories, hierarchies, numbers to explore different relationships between sets of information.

Based on your research question/topic—overlay another series of Project 01 maps with yours to uncover intersections that might form the basis of your project 02 network.



In 1736, Euler's path didn't exist in mathematics were represented that except should have an *Eulerian* another way exactly two the path sta

BASIC ELE

Networks are structure, or mathematics representati capturing on Vertices and information, of the system

most common types of network layouts



LINEAR:

Nodes are organized linearly and the links are usually arcs connecting nodes.
Con: It's hard to identify clusters and is only feasible for small datasets.



FORCE DIRECTED:

There are many algorithms that use an iterative process to locate nodes according to physical forces.
Con: There are too many node occlusions and link crossings in dense areas.



CIRCULAR:

Nodes are organized around the circumference and usually grouped by categories. Links cross the circle and are usually bundled so as to simplify the crossings.
Con: It's hard to identify clusters.



SANKEY TYPE DIAGRAMS:

Nodes are organized vertically and the links horizontally.



FORCE DIRECTED:

Force directed graphs centered on a node.



POLAR OR RADIAL:

Nodes are organized around a central node, with their position related to the number of hops it takes to reach it.



COMMUNITY STRUCTURE:

The focus is on community structures.



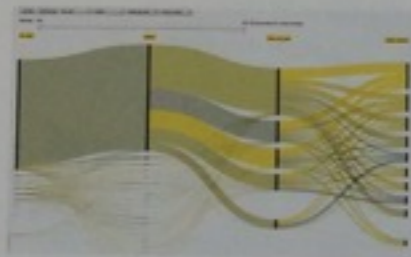
GEOGRAPHY BASED:

Spatial location of a node is provided by its geo position.



MATRIX:

Grid of nodes with link information positioned within the cell.



RADIAL COMMUNITY STRUCTURE:

Nodes are organized around a central community.



most common layouts centered on nodes

Like Galileo's telescope (1564–1642), Hooke's microscope (1635–1703), or Roentgen's x-rays (1845–1923), new information analysis tools are creating visualizations of never before seen structures. Jupiter's moon, plant cells, and the skeletons of living creatures were all revealed by previous technologies. Today, new network science concepts and analysis tools are making isolated groups, influential participants, and community structures visible in ways never before possible.

Ben Shneiderman