

Time-Series
Data

S. Santoni

The Nuts and
Bolts of
Temporal
Data Viz

Exemplars of
Temporal
Data Viz

Handling
Time-Related
Data with R

Time-Series Data

S. Santoni¹

¹Bayes Business School

MSc in Business Analytics, 2024/25

Outline

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Ice-Breaker Question

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How does 'time' matter for data visualization?

How Does 'Time' Matter for Data Visualization?

Example 1: Napoleon's Russian Campaign

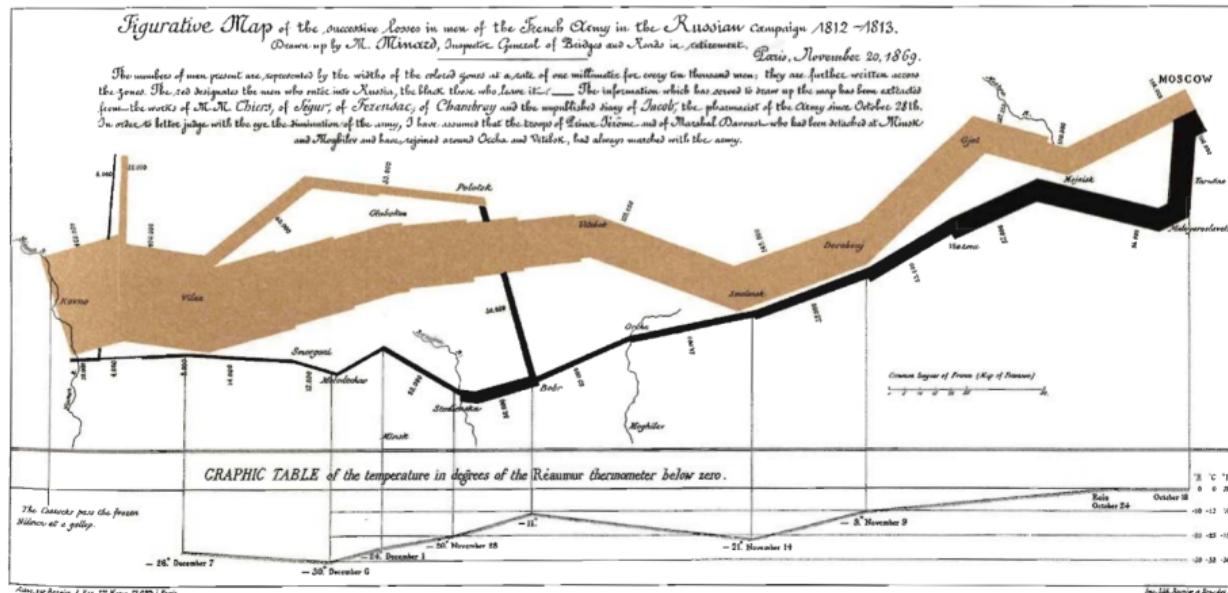
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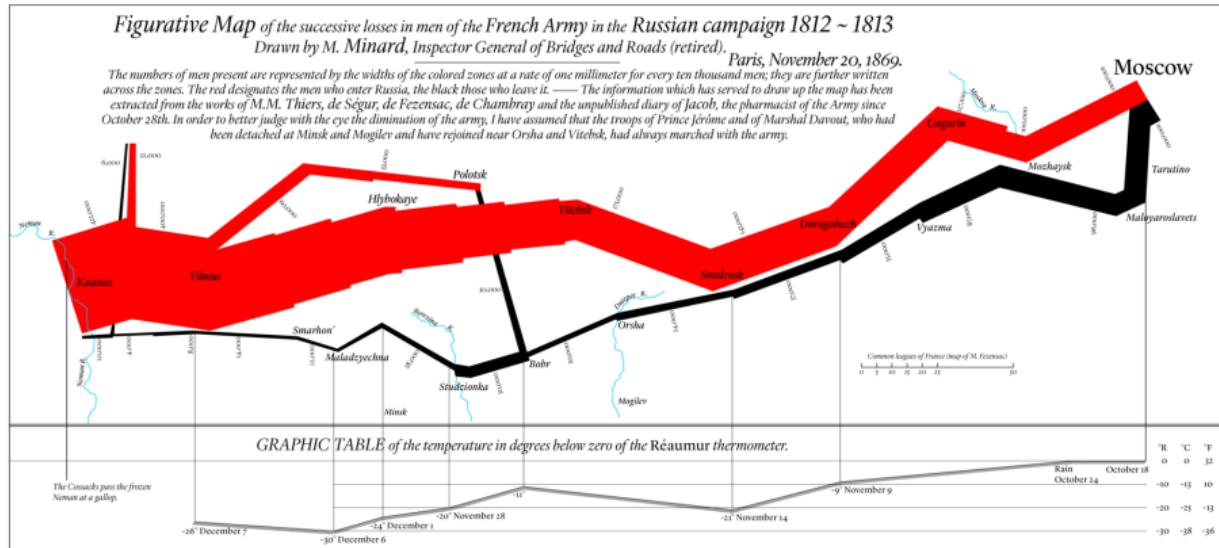
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How Does 'Time' Matter for Data Visualization?

Example 2: strong openers and late bloomers

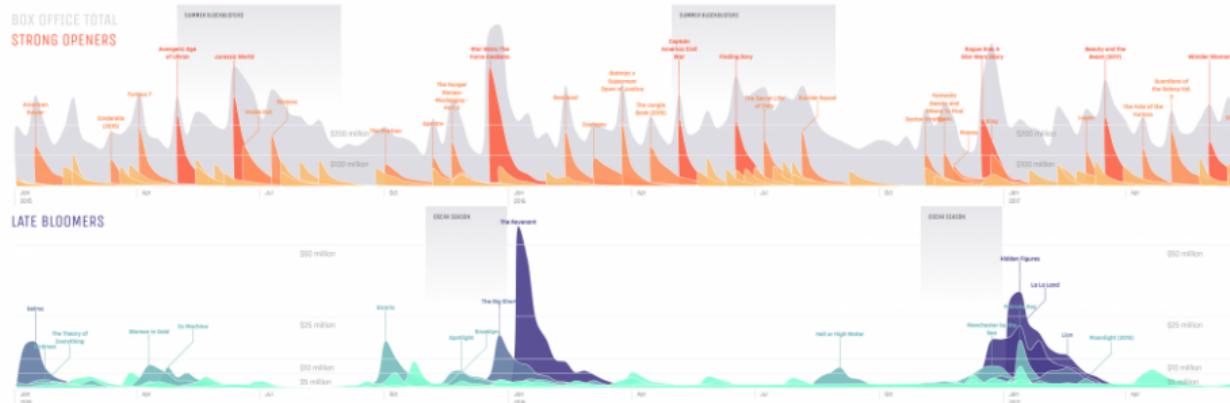
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Time-Related Viz: Goals

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Provided our data include a temporal dimension, we may want to show one of the following

- Change in a continuous variable
- Change in a qualitative (i.e., categorical) variable
- Sequences of change — i.e., patterns of change in a continuous or qualitative variable
- Connections among events

Time-Related Viz: Analytical Approaches

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There are two possible analytical approaches to investigating/visualize data with a temporal dimension:

- Within-case approach
- Comparative, within- & between-case approach

Time-Related Viz: Analytical Approaches

A single time series is suited to the within-case approach

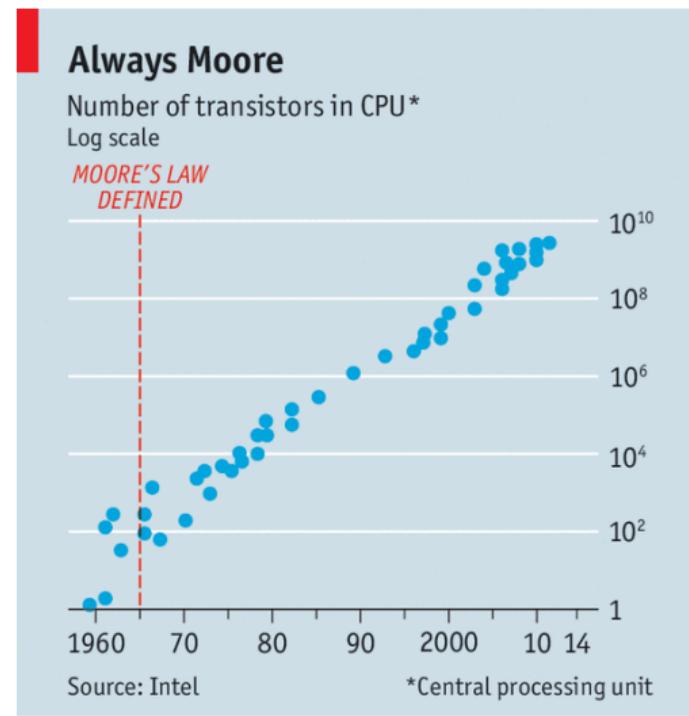
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Economist.com

Time-Related Viz: Analytical Approaches

A multiple time-series/panel is suited to the within- & between-case approach

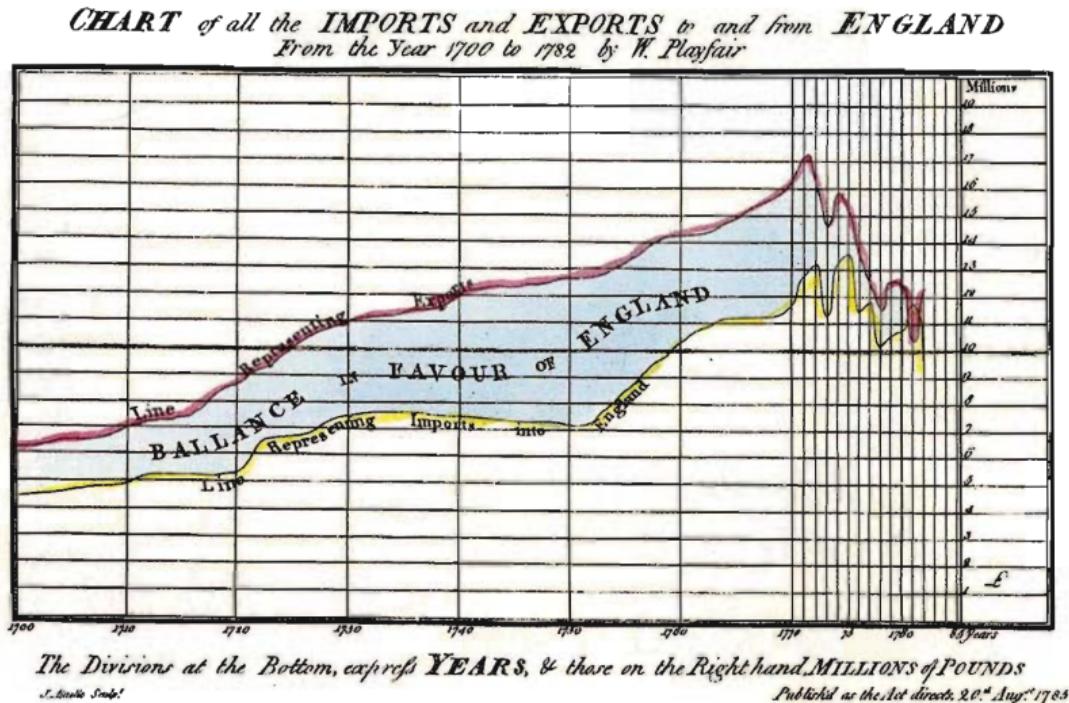
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Popularity of YouTube Videos

Miotto, José M., and Eduardo G. Altmann. "Predictability of extreme events in social media." PloS one 9, no. 11 (2014): e111506.

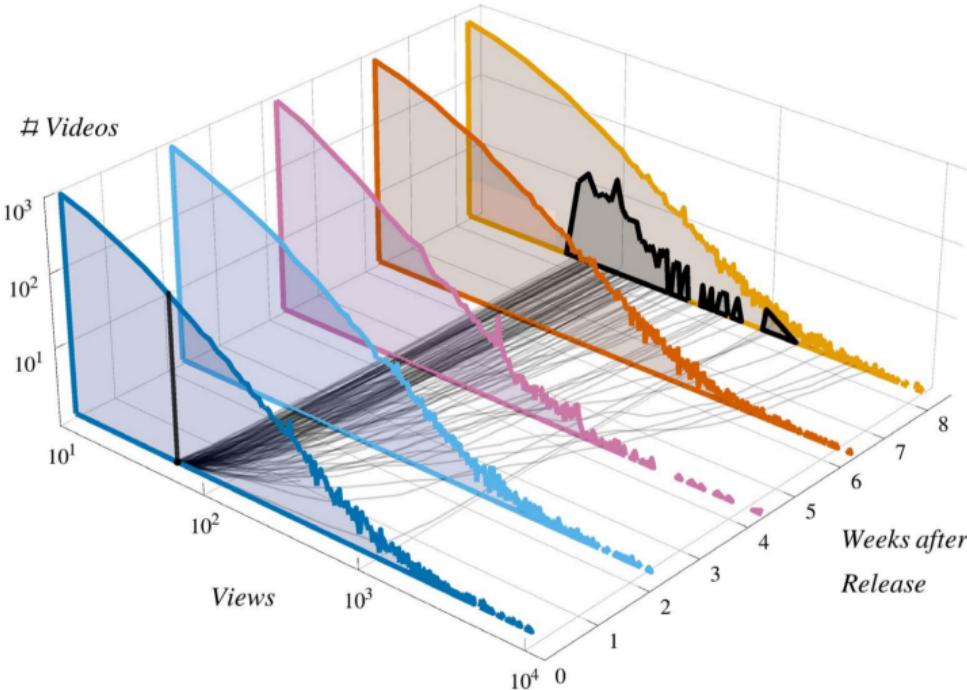
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US Senate Voting Similarity Over Time

Source: Moody, James, and Peter J. Mucha. "Portrait of political party polarization1." Network Science 1, no. 1 (2013): 119-121.

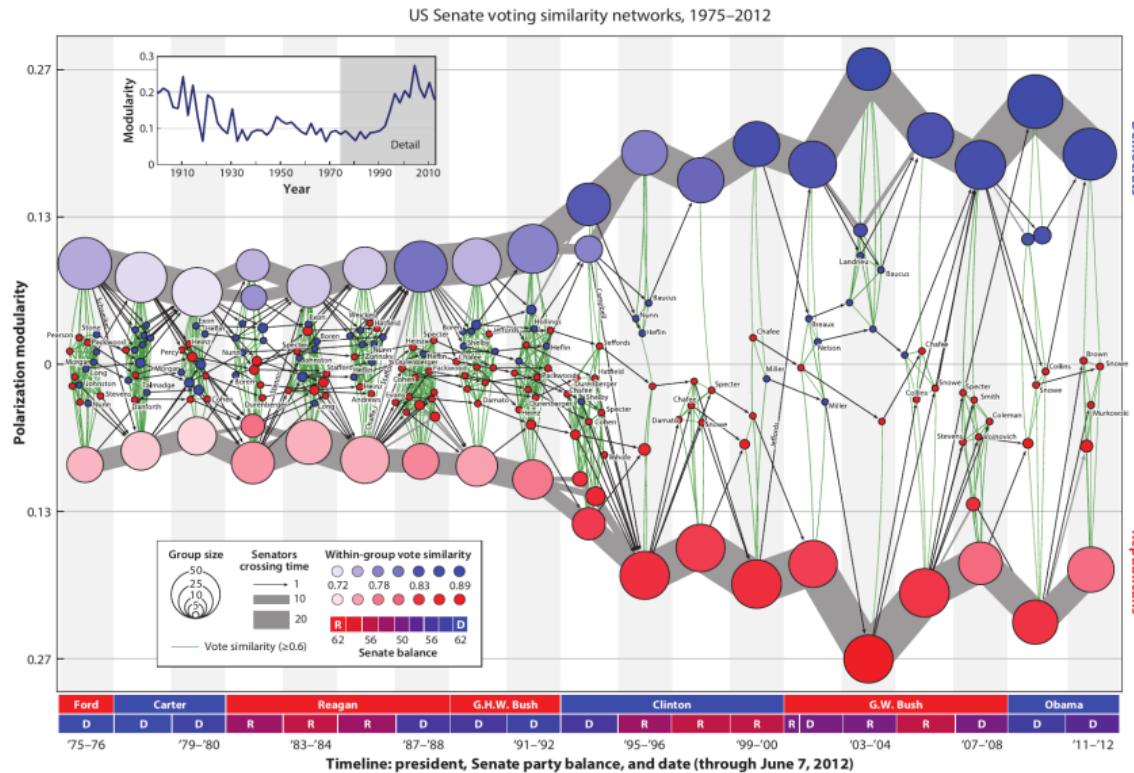
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