

M259 Visualizing Information

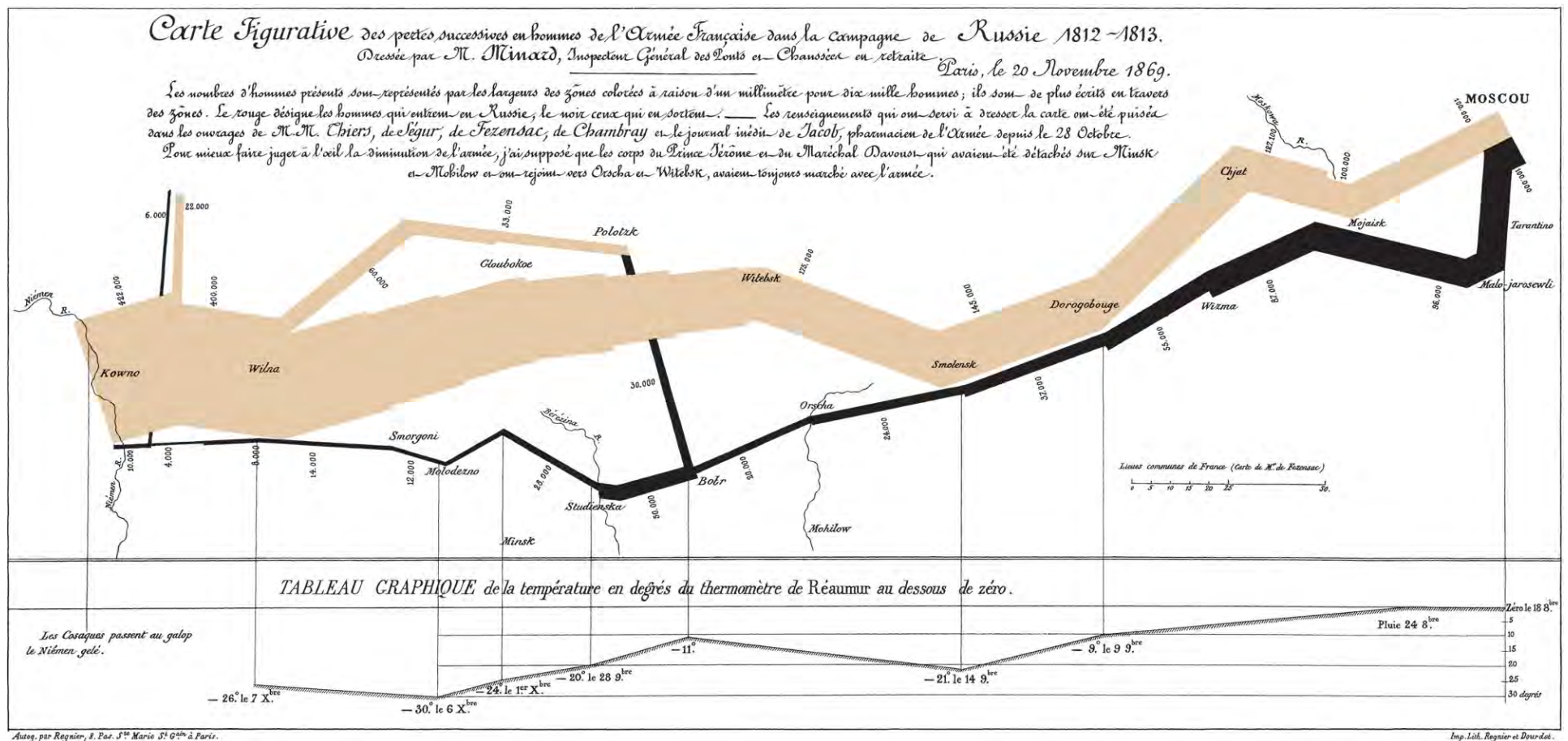
Project 1: Frequency Map

Frequency Map

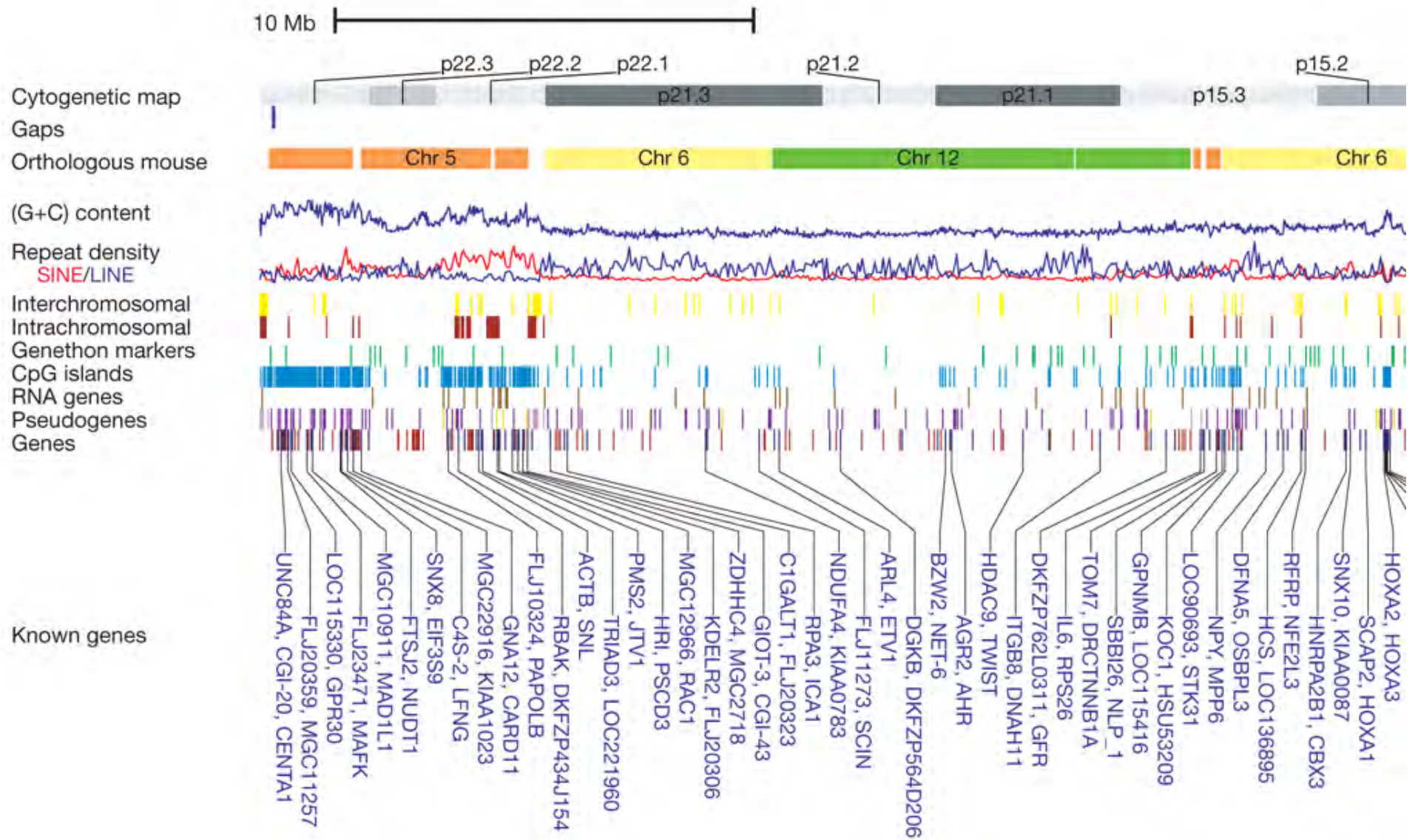
- Frequency maps display frequency distribution:
 - how often certain data have been active,
 - by much, and measured according to some scalar reference
- Why? The purpose is to gain insight through visual representation
 - To identify clustering of activities which may represent trends; and/or reveal patterns in relation to time
 - Visualization easily reveals gaps, groups, outliers for data analysis

Charles Joseph Minard (1781-1870)

- French civil engineer and pioneer in the field of information graphics

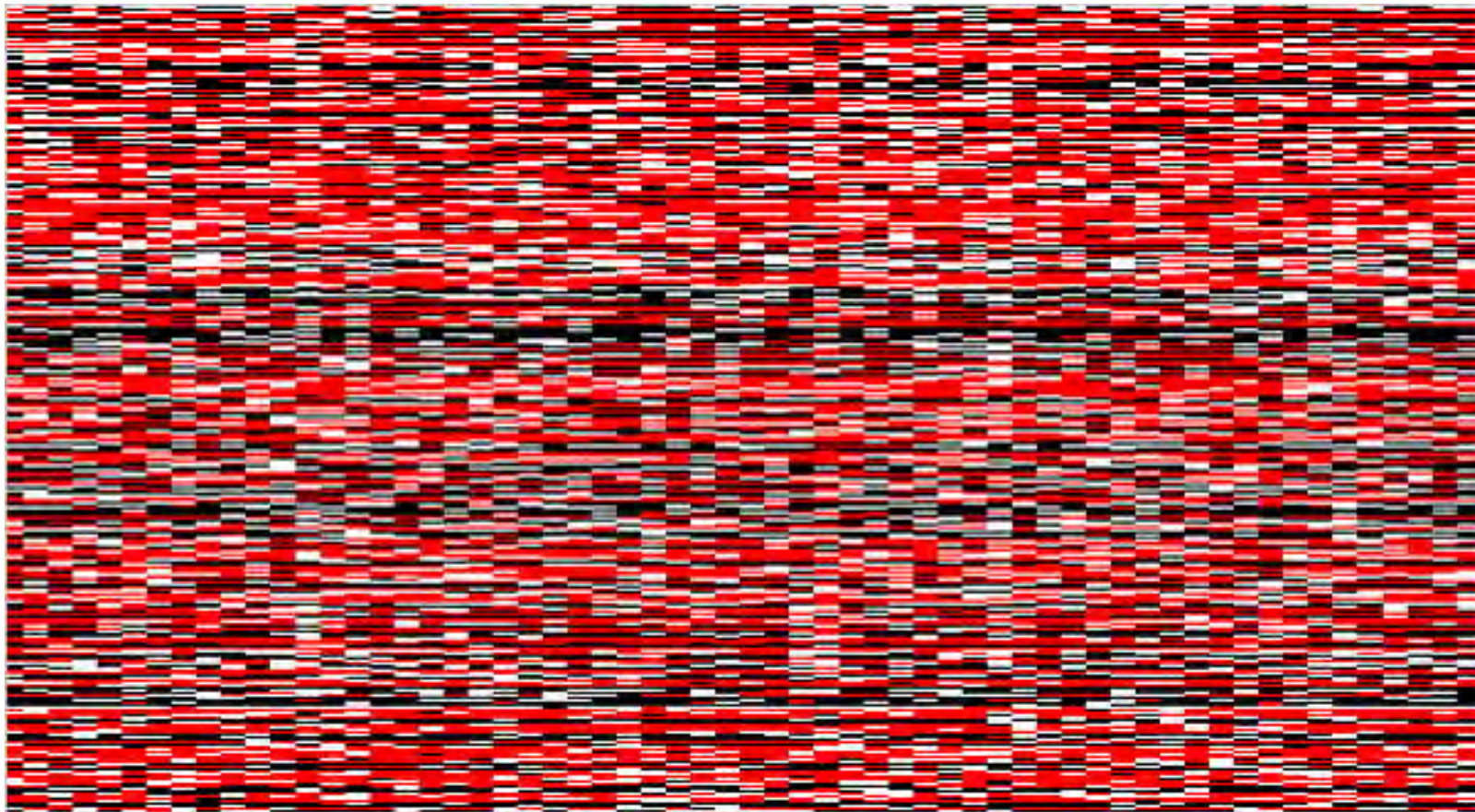


A contemporary version: DNA



Another DNA Visualization (NY Times, 2008)

- DNA sequences with 24,000 genetic markers

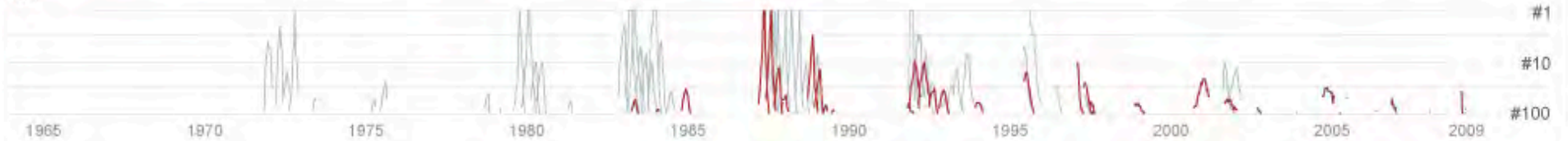


How Michael Jackson's Billboard Rankings Compare With Other Notable Artists

The Beatles



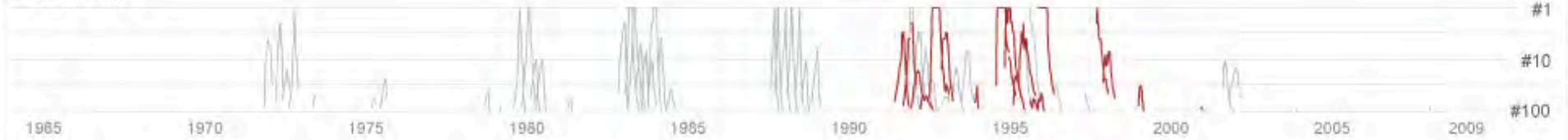
U2



Mariah Carey



Boyz II Men



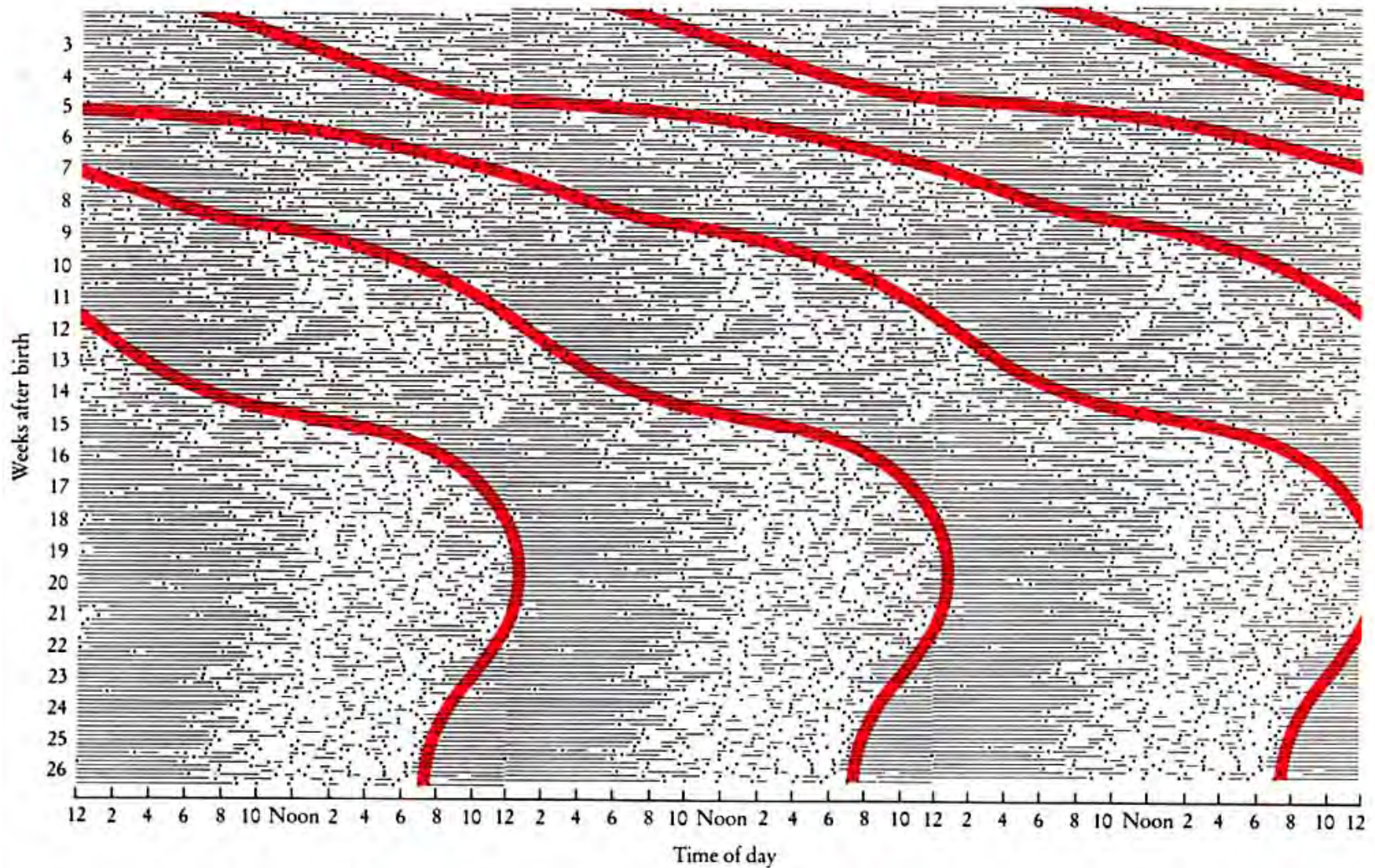
Usher



Source: Billboard.com

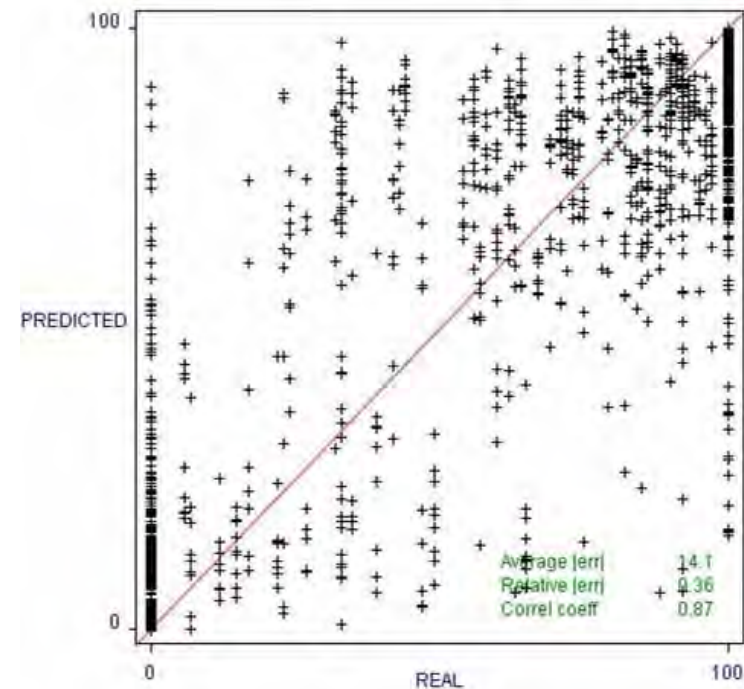
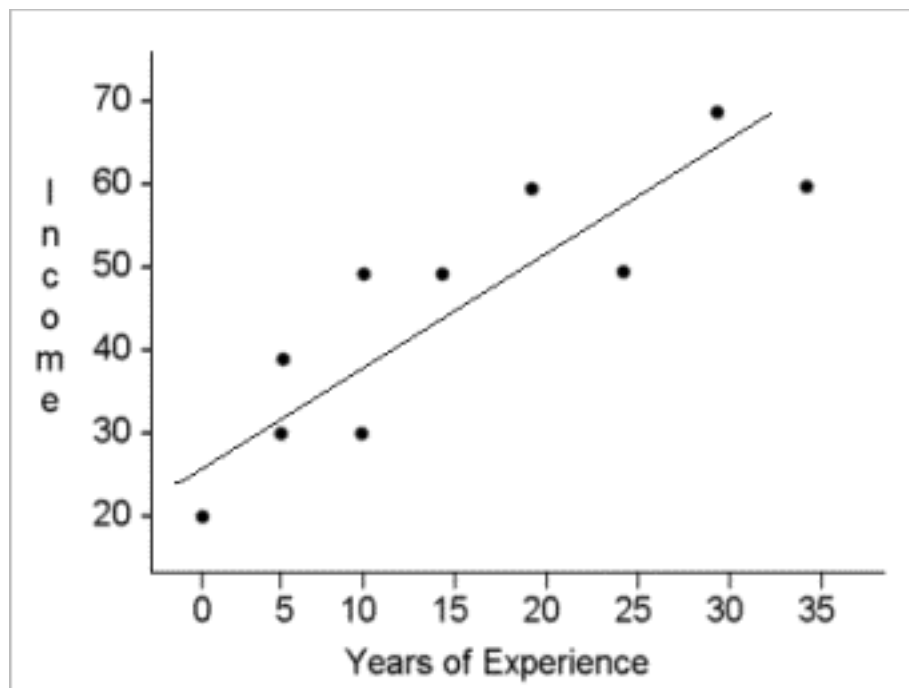
Matthew Bloch, Shan Carter, Jonathan Corum, Amanda Cox and Matthew Ericson/The New York Times

BioRythm: Frequency Map reveals pattern

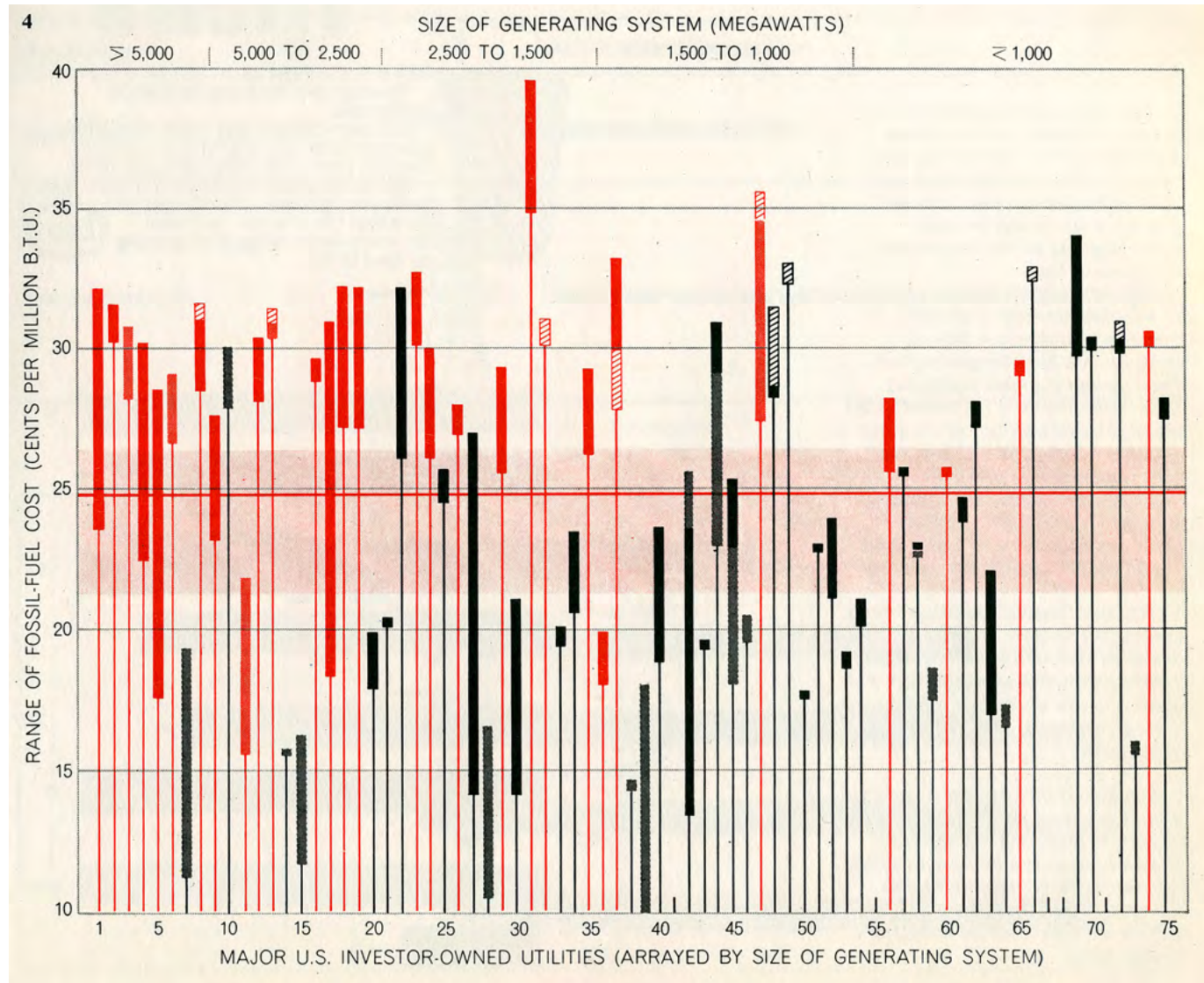


Scatterplot: Summary of a set of bivariate data

- Potential association between two variables

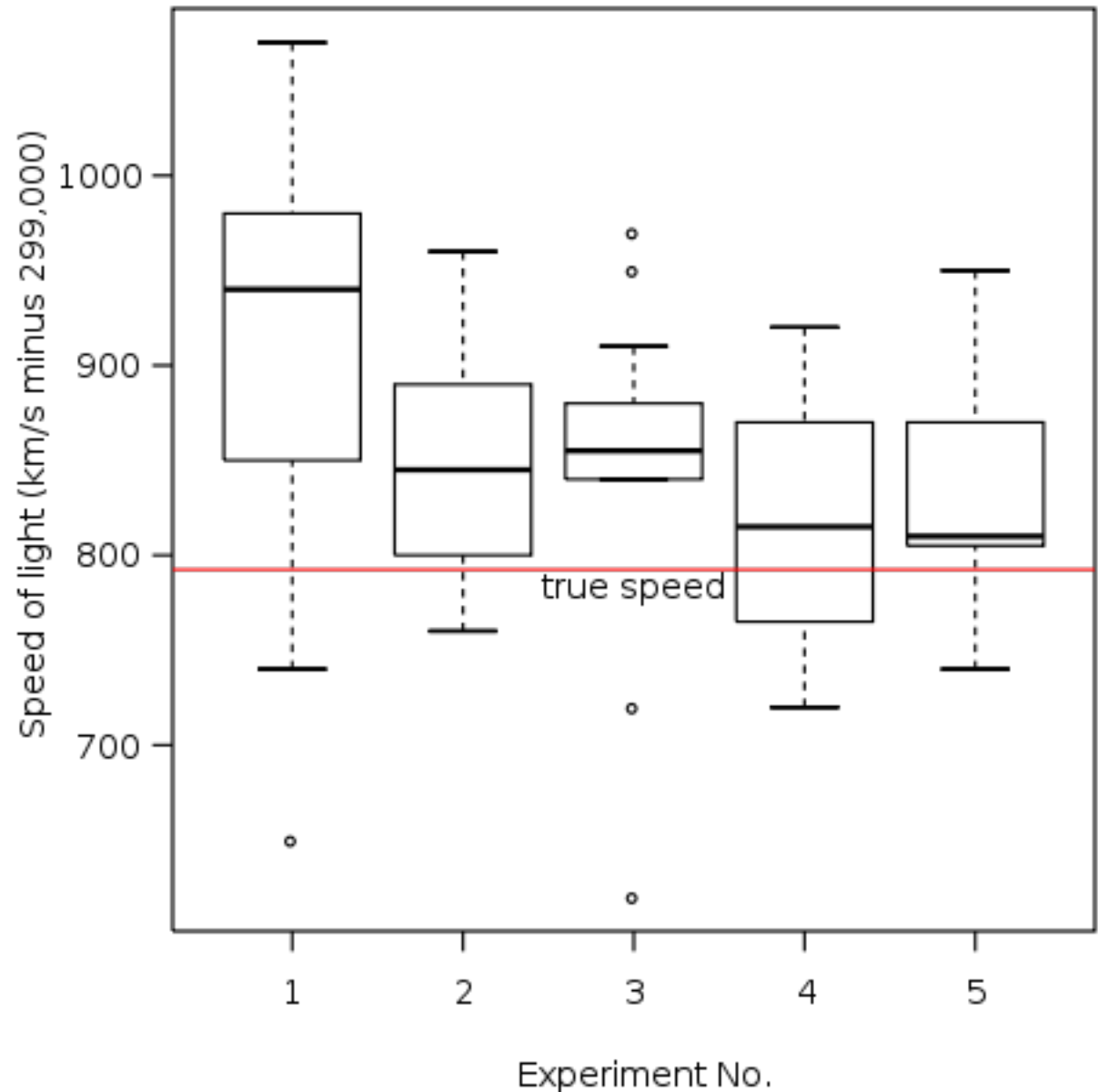


Histogram-like map with boxplot



Boxplot: Five Number Summary

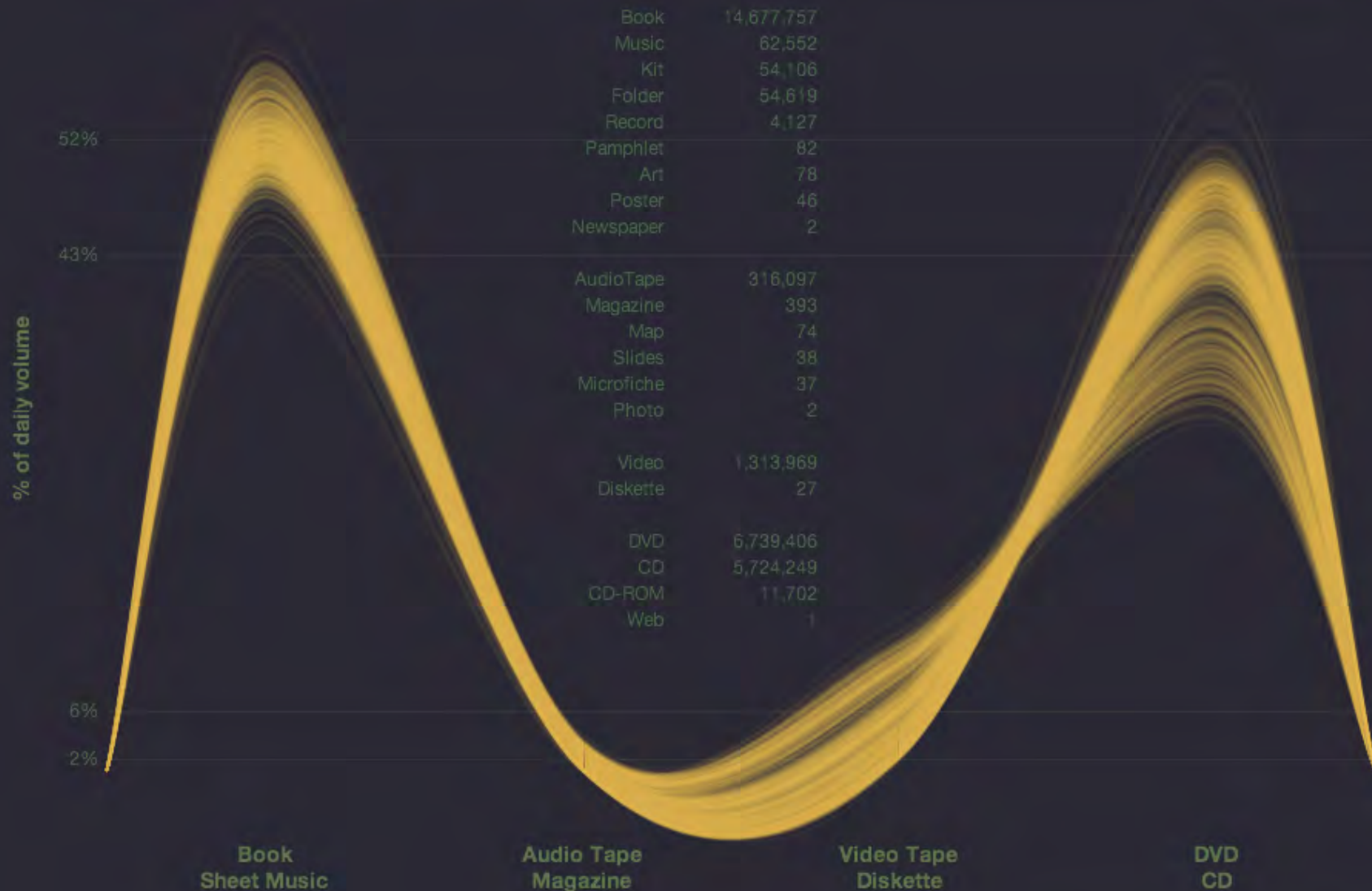
- Outliers
- Spread with
 - Upper quartile
 - Median
 - Lower quartile

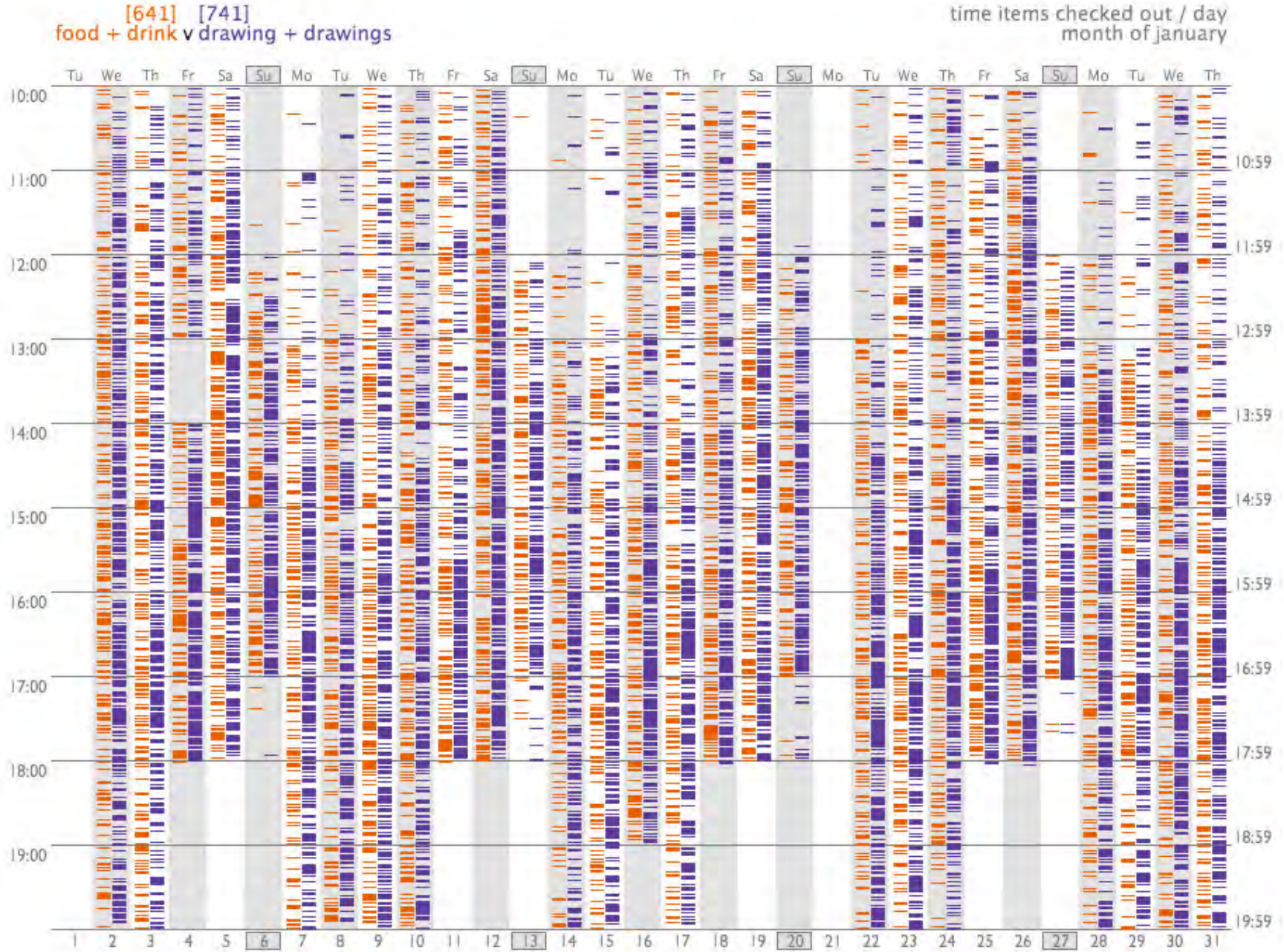


Library Loans by Media Modernity

June 1, 2005

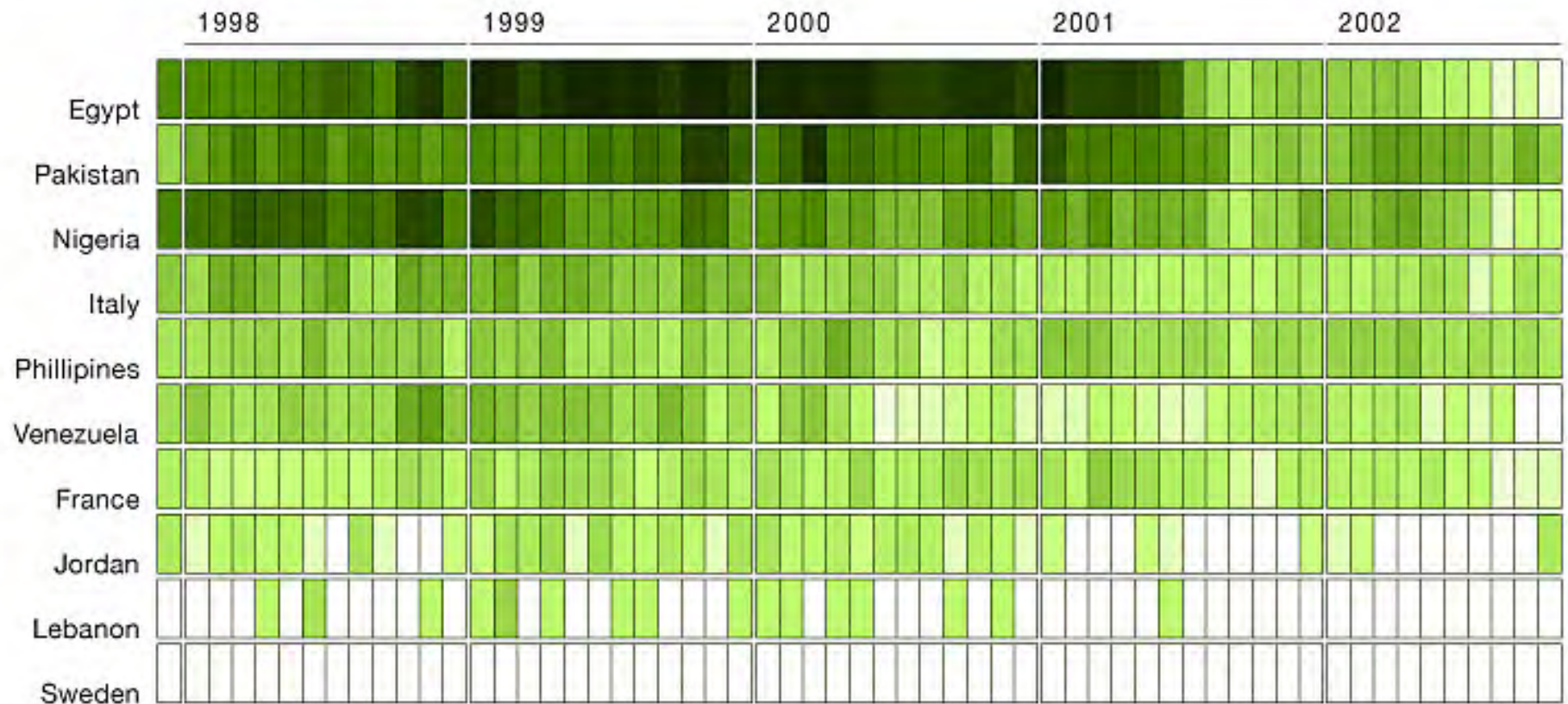
January 14, 2009





Frequency Maps Can Tell a Story ([catalogtree](#))

DIPLOMATIC PARKING VIOLATIONS



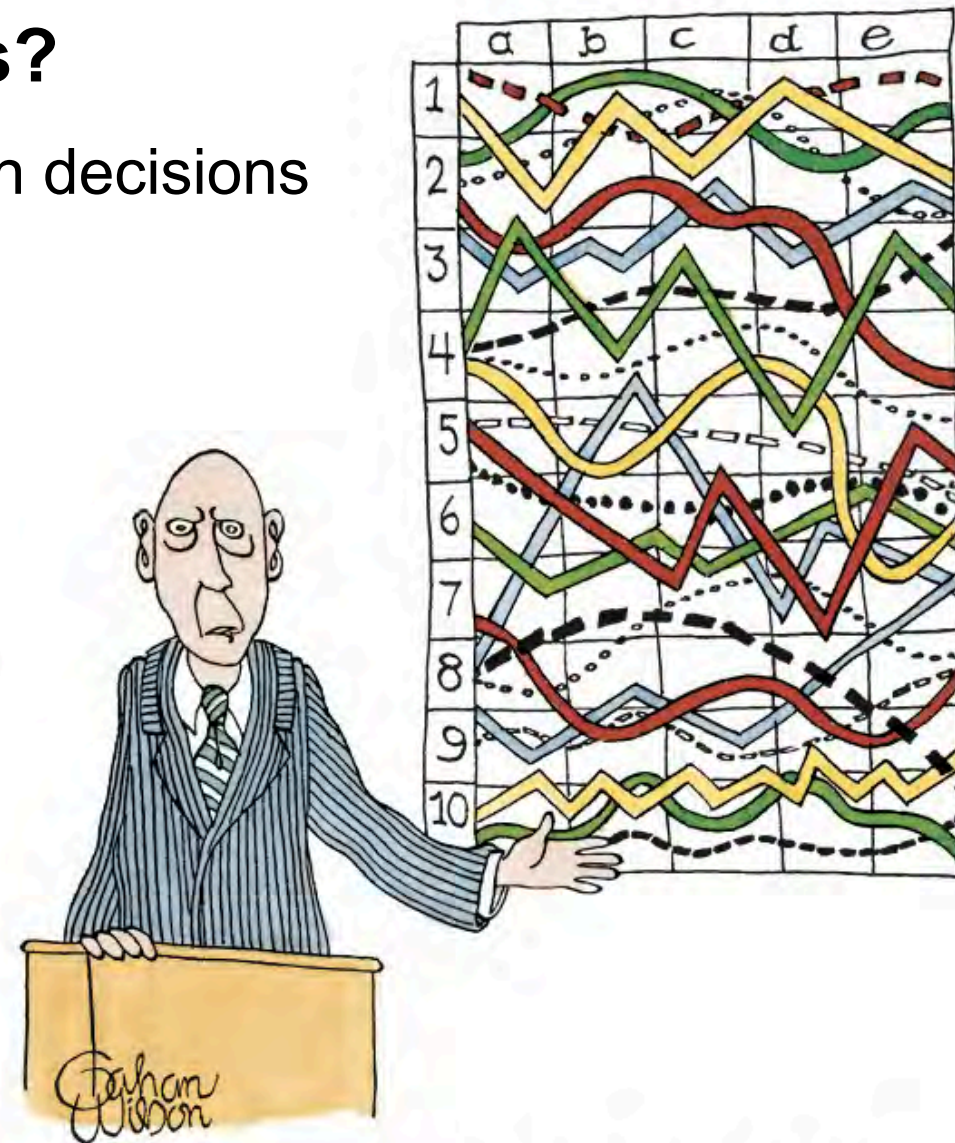
Monthly unpaid violations per diplomat from december 1997 to october 2002

Frequency Map Project Details

- Best to work with topics of interest: War, religion, comics, global warming, etc.
- Do frequency comparison with as many datasets as possible (Dewey categories, films, cds, etc.)
- Study the data then come up with a sketch – doodle it many times
- Plan out form, colors, grid structure
- Write up concept to present to class with doodle (first forward to me for sign-off)

What are the Issues?

- Design decisions



"I'll pause for a moment so you can let this information sink in."

Visual Language: A discipline

- Visual language is a discipline (like any other) that involves an apprenticeship / practice by which to develop visual skillsets
- Those involved in the field (architects, designers, etc.) who prioritize visualization, tend to have higher investment and therefore achieve greater precision
- Visual communication targets audiences, and a common link must be achieved
- Design decisions are cultural and subjective, based on degree (or lack of) visual language training

Swiss Graphic Design Features

- Developed in the 1950's: A search for objective visual communication
- Spatial precision, balance, and interplay through the use of a grid system by which to align elements within geometric grids
- Each project requires a “visual identity”, a system of form, colors, etc to create coherence
- Design should be legible
- Form follows function.
- Sans serif font: Arial, Univers, Futura, Frutiger, Helvetica, Akzidenz Grotesk

Swiss Graphic Design Grid System



Bibliographic References

- Visual Display of Quantitative Information, Edward Tufte
- Origins of Species, Ben Fry
- Information Aesthetics
- Visual Complexity