

Perception and Data Visualization

Nikodem Lewandowski

When Do We Need Data Visualizations?

STRONA GŁÓWNA / KRAJ

Ostatni sondaż przed wyborami. Jak o poparcie dla partii politycznych?

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Udostępnił przez

Wybory parlamentarne 2023



Sala plenarna, Sejm. Fot. PAP/Rafal Guc

36,7 proc. ankietowanych deklaruje głosowanie na Zjednoczoną Prawicę; 29,9 proc. - na Koalicję Obywatelską; a 10,1 proc. na Trzecią Drogę, poparcie dla Nowej Lewicy i Konfederacji deklaruje po 9,7 proc. ankietowanych - wynika z sondażu Estymatora dla DoRzeczy.pl. Szacowana frekwencja to 63 proc.

Swoje poparcie dla Zjednoczonej Prawicy zadeklarowało 36,7 proc. ankietowanych, co oznacza

NAJNOWE

Dwa zgłoszenia o wyborczej w woj

KRAJ

Niemieckie media żydowskiej panuje się chodzą do szk

ŚWIAT

PKW podała pier incydentach. Odn przypadki wyroc

KRAJ

W Żurawiu w lesk ludzkie, prokuratu

KRAJ

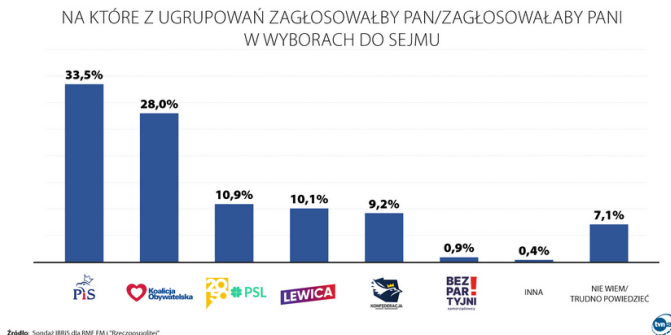
Rosyjska bomba k obwodzie charkow

ŚWIAT

POLECANE



When Do We Need Data Visualizations?



- Measuring how quickly you can properly read the information is a good way to evaluate the quality of the visualization.

Different Ways to Convey Information

91%

Simple text



Scatterplot

	A	B	C
Category 1	15%	22%	42%
Category 2	40%	36%	20%
Category 3	35%	17%	34%
Category 4	30%	29%	26%
Category 5	55%	30%	58%
Category 6	11%	25%	49%

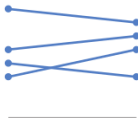
Table



Line

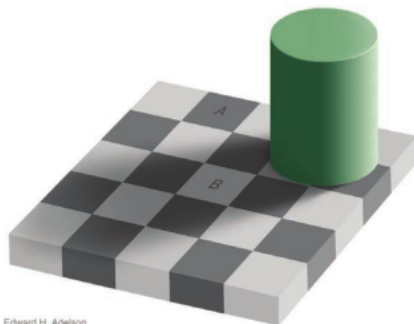
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Heatmap



Slopegraph

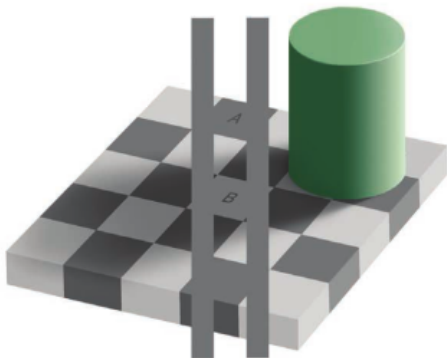
Perception and Data Visualization



Edward H. Adelson

- The human brain is amazing, but it can easily become confused.

Perception and Data Visualization



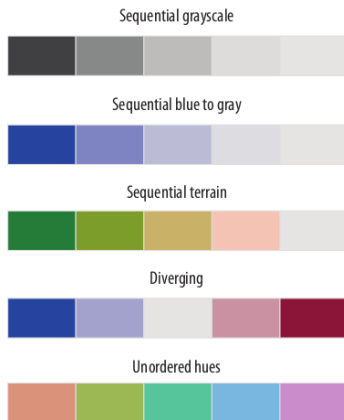
- We should keep human cognitive limitations in mind when creating data visualizations.

Shades of Gray



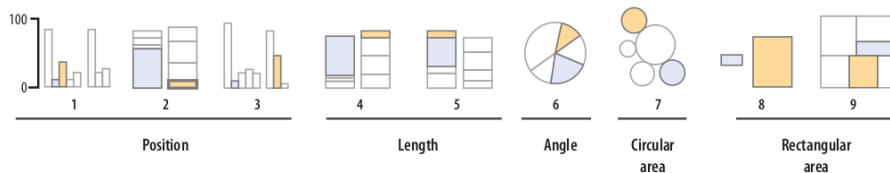
- Some people are color blind.
- The print of your plot might be in black and white.
- Your plot might be displayed on a projector with low contrast.

Color Palettes



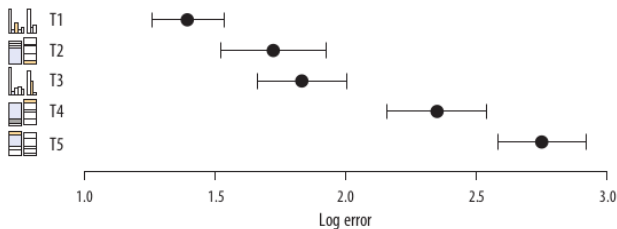
- Some topics are associated with specific colors (e.g., red for danger).
- Some topics are sensitive:
 - ▶ Representing, e.g. death with bright pink is inappropriate.
 - ▶ Colors can be associated with stereotypical beliefs.

Plot Type and Perception

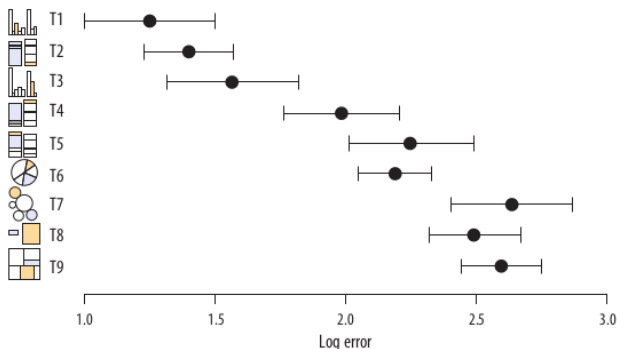


- The time it takes our brains to process information varies relative to the plot type.

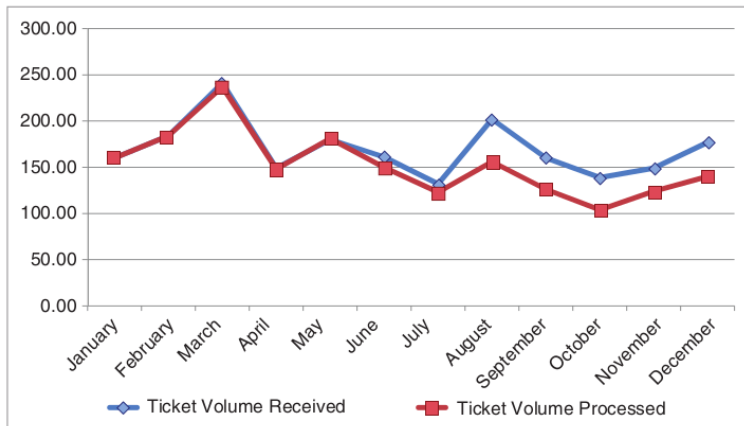
Comparison of How Much Time We Need



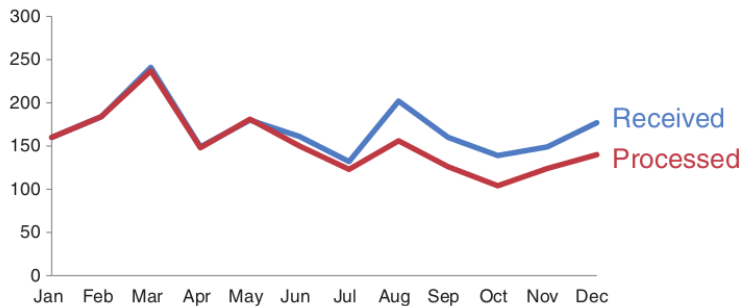
Crowdsourced results



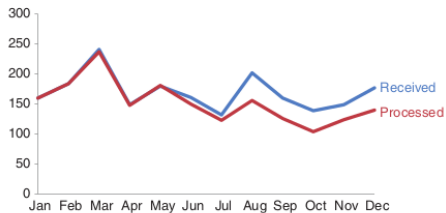
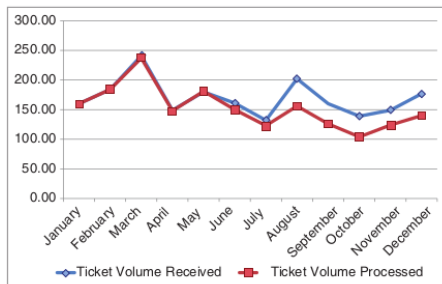
Non-Brain-Friendly Plot



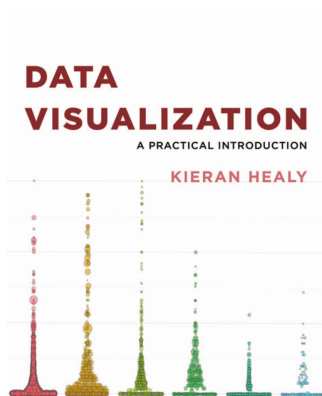
Brain-Friendly Plot



Comparison of Both Plots



Supplementary Materials



- Be cautious about websites that provide illegal access to millions of books and publications:
 - ▶ libgen
 - ▶ z-lib