An Admin's Guide to Data Visualization

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[citation needed]

- Cleveland, The Elements of Graphing Data (1968, 1994)
- Cleveland, Visualizing Data (1994)
- Huff, How to Lie with Statistics (1954)
- Kahneman, Thinking Fast and Slow (2011)
- Csíkszentmihályi, Flow (1990)
- Robbins, Creating More Effective Graphs (2009)
- Zumel, Good Graphs (2009)
What is Visualization
Humans suck at pretty much everything, especially estimation.
Perception and Thought

Types of Memory

- Iconic (super fast, instinctual)
- Short Term
- Long Term

Types of Thought

- Preattentive
- Type 1 (instinctive)
- Type 2 (deliberative)

Kahneman 2011, Csikszentmihalyi 1990
Preattentive Thought

- Size
- Position
- Orientation
- Curvature
- Gray Value
- Hue
- Shape
- Enclosure
- Number (up to four)

- Grouping
  - Proximity
  - Similarity
  - Connectedness
  - Continuity
  - Symmetry
  - Closure
  - Size
  - Enclosure

Csíkszentmihályi 1990
Long Distances
Angles
Perpendicular Distance
Graph The Message
Log population growth (rate of change)

Population (on log scaled axis)

Year


Zumel 2009
Scale Matters
High Density Plots
Binning
Aspects and Banking
Bertin Efficiency
(sorry, no)
Rogues Gallery
INCOME DISTRIBUTION OF RESPONDENTS CHOOSING NEITHER HILLARY NOR TRUMP

Distribution showing % of Respondents in each income category.
Percentage of Chart Which Resembles Pac-man

- Resembles Pac-man
- Does not resemble Pac-man
The Sale and Growth of Video Games From 2000 to 2006

Millions to Billion(s)
From Center to Outward: .5, 1, 2, 3, 4, 5, 6, 7, 8

U.S.
Total Console Game Software

U.S.
PC Game Software

Japan
N.A.
Europe

2000 2001 2002 2003 2004 2005 2006

Only in retail sales. Online game subscriptions and digital distribution are NOT INCLUDED.
PROJECT FEAR HIT TRUST IN GOVERNMENT

Percentage of people who said they trust national government

Source: ONS

37%

34%

2015

2016
SIZING UP PLANET NINE

Scientists estimate the planet measures somewhere between the size of Earth and that of the planet Neptune.

SOURCE: Caltech
Frank Pompa, USA TODAY

@caskey
How concerned are you about the Zika virus?

- Very: 34%
- Somewhat: 28%
- Not very: 25%
- Not at all: 13%
Who has the world's strongest economy?

*Percentages are from 2011*

@caskey
FEDERAL DRUG CONTROL BUDGET

<table>
<thead>
<tr>
<th>President</th>
<th>OBAMA</th>
<th>BUSH</th>
<th>CLINTON</th>
<th>BUSH</th>
<th>REAGAN</th>
<th>CARTER</th>
<th>FORD</th>
<th>NIXON</th>
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<tr>
<td>IN BILLIONS</td>
<td>$7.6</td>
<td>$4.9</td>
<td>$4.9</td>
<td>$6</td>
<td>$3</td>
<td>$0</td>
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- Green line: LAW ENFORCEMENT & INTERDICATION
- Red line: TREATMENT & PREVENTION

@caskey
Streaming-TV Rivals
Market share for over-the-top streaming devices

- Apple TV: 12%
- Google Chromecast: 22%
- Amazon Fire TV: 16%
- Roku: 49%
- Other: 1%

Note: As of March 2016
Source: comScore
THE WALL STREET JOURNAL.
Oldham County, Kentucky
Population by US Decennial Census (2000-1830)