



Every Picture Tells a Story: Using Many Graphics at Once

Antony Unwin
Augsburg University

Every picture tells a story

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"My experience is what I agree to attend to.
Only those items which I notice shape my mind
— without selective interest, experience is an
utter chaos."

William James



Examples and Questions

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3 Examples and 3 Questions

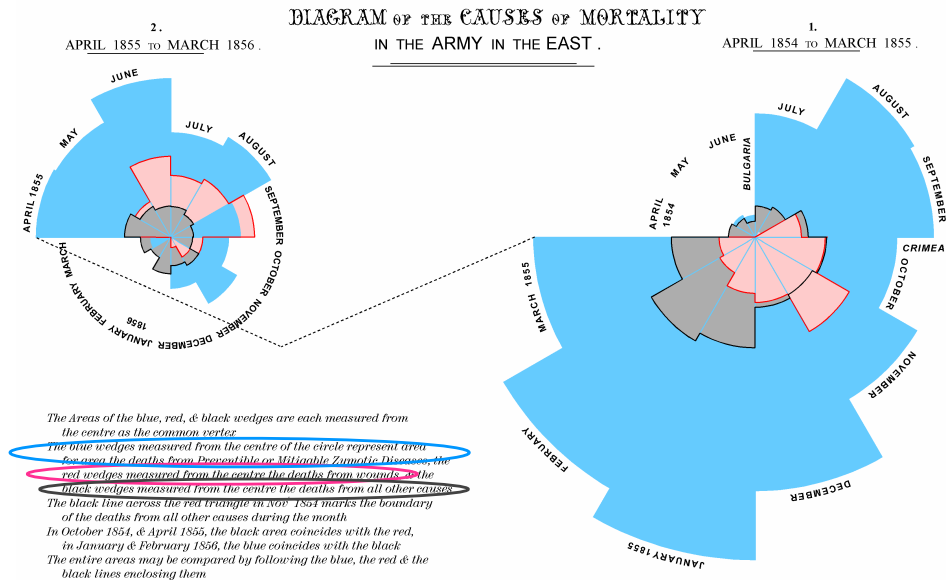


- Army deaths in the Crimean War
- Movie box office receipts
- Plane crashes
- Do you like the graphic?
- What information can you see?
- Is it difficult to read the graphic?

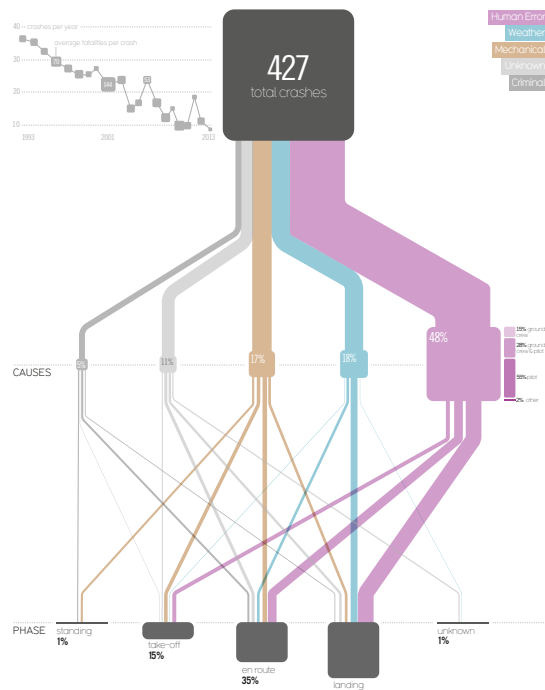
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Display of data on plane crashes (David McCandless)

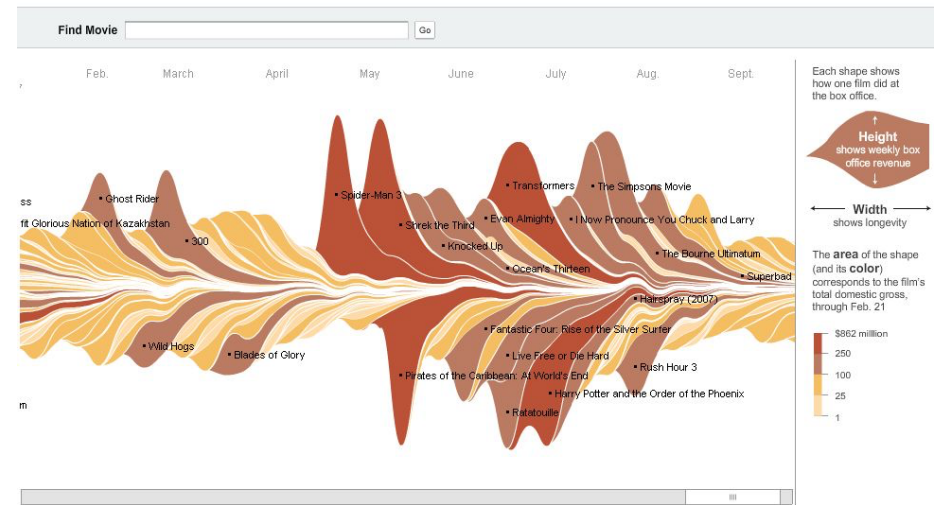


February 23, 2008

SIGN IN TO E-MAIL OR SAVE THIS | FEEDBACK

The Ebb and Flow of Movies: Box Office Receipts 1986 — 2008

Summer blockbusters and holiday hits make up the bulk of box office revenue each year, while contenders for the Oscars tend to attract smaller audiences that build over time. Here's a look at how movies have fared at the box office, after adjusting for inflation.



Sources: Baseline StudioSystems; Box Office Mojo

Mathew Bloch, Lee Byron, Shan Carter and Amanda Cox

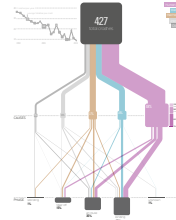
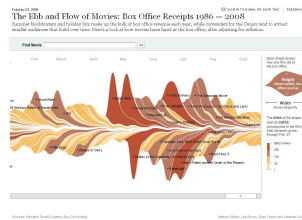
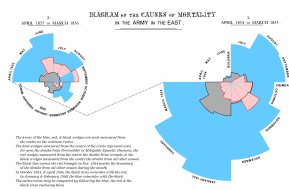
Everyone claims not to understand numbers.

Everyone believes they understand graphics.

How much would having more experience with coxcombs, streamgraphs et al help?



Alternatives for

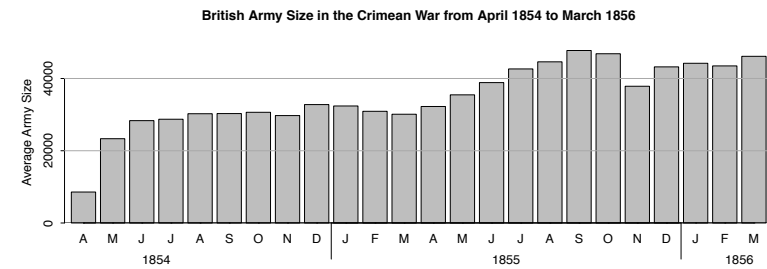
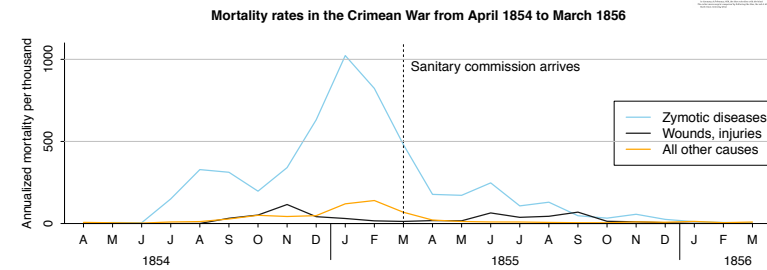
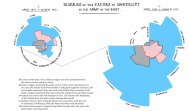


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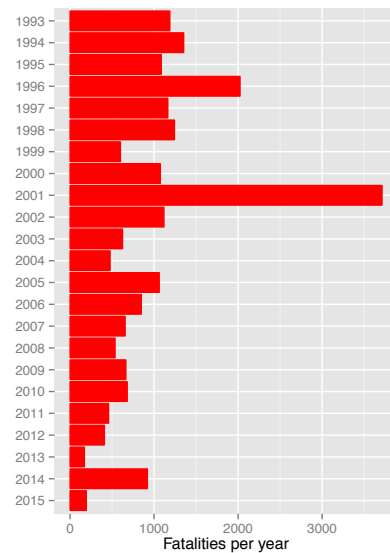
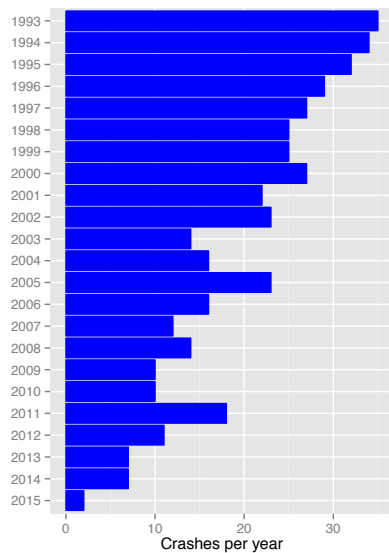
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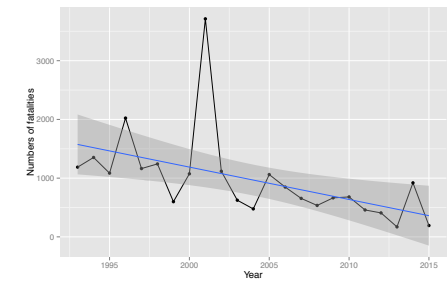
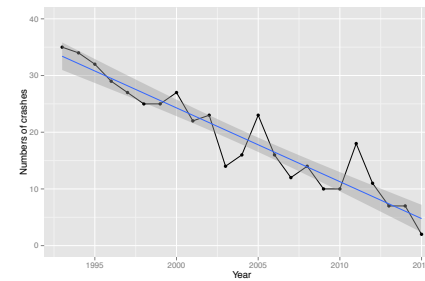
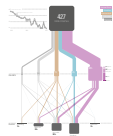
Alternatives for the Crimean data



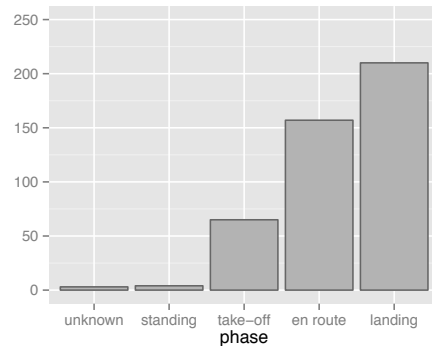
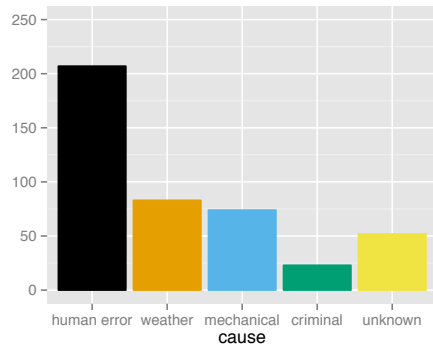
Alternatives for the Air Crash data (1)



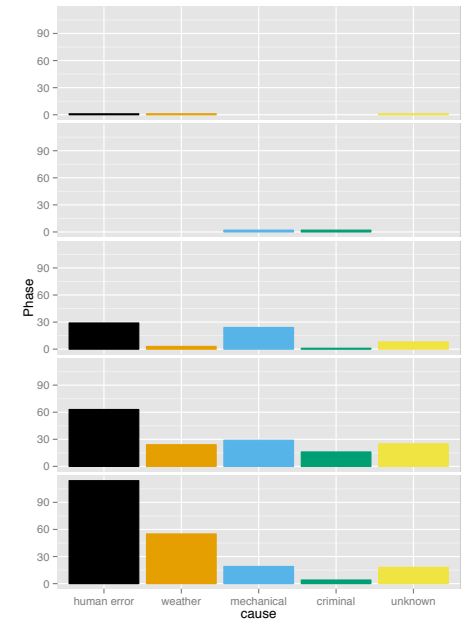
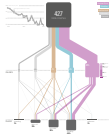
Alternatives for the Air Crash data (2)



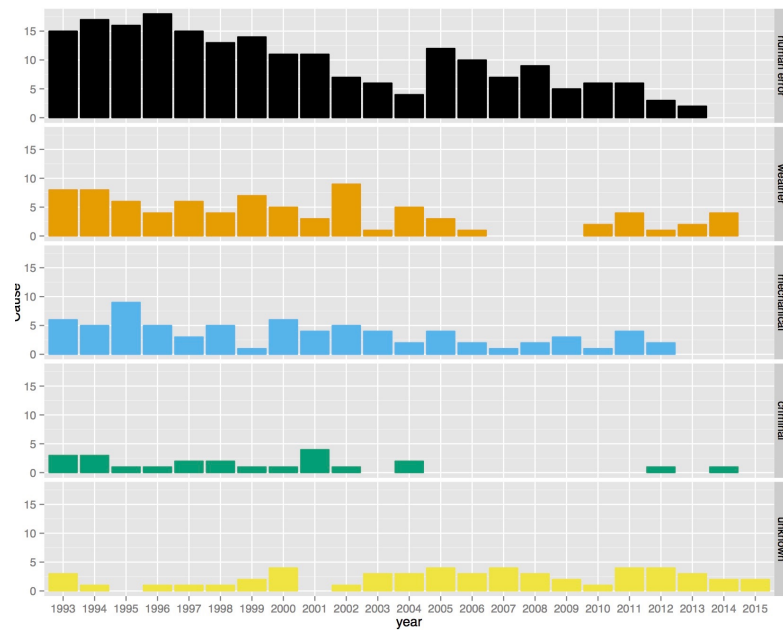
Alternatives for the Air Crash data (3)



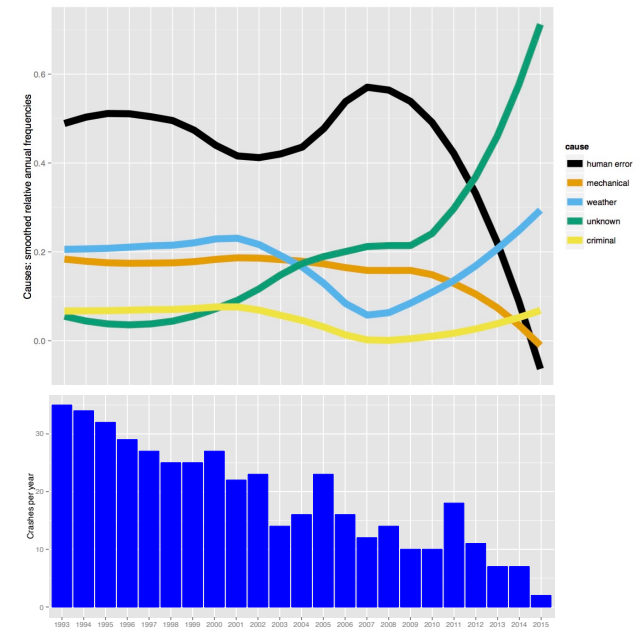
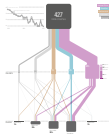
Alternatives for the Air Crash data (4)



Alternatives for the Air Crash data (5)



Alternatives for the Air Crash data (6)





Recommendations

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Vary, vary, vary... a lot



- Windows
 - size and aspect ratio, position and alignment
- Scales
 - scaling and zooming, with/without outliers
- Axes
 - orderings within axes, ordering of multiple axes
- Points, lines, areas:
 - size, colour, alphablending, form

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Various versions of a graphic



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Many, many, many graphics



- Multiples of the same variable (transformations)
- Multiples of the same graphic (resize, rescale...)
- Different graphics of the same variable
- Multiple graphics by subgroups (trellis...)
- Various graphics of different variables
 - ... not just small multiples

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Multiple graphic views



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The Ex Factors



- Exploration: very many graphics to get lots of info
- Exposition: structured graphics to manage the info
- Experience and expectations influence what you see

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Expectations



- Without expectations you jump to conclusions.
- With expectations you can be surprised and learn.
- What you see depends on what you expect.
- Multiple views help you check your ideas.

We are all experts at explaining what we see—
once we have a display in front of us.

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Construct a narrative



- Graphics are memorable
- Stories are memorable
- Graphics combined in a narrative are best of all

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A Movies Example

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Movies: a dataset

- Movies data from the web (imdb.com)
- Just under 60,000 films (scraped in 2007)
- Information on
 - Year, Length, Budget
 - Type (7 binary variables)
 - Classification
 - Numbers of viewers' ratings and average rating
- What would you expect to see?

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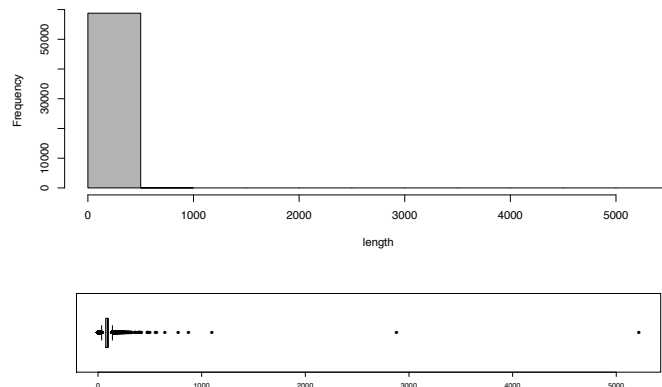
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Movies (1)



Histogram of length



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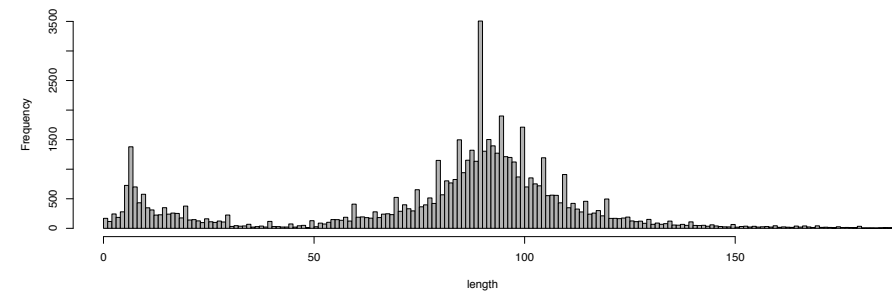
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Movies (2)



Histogram of length

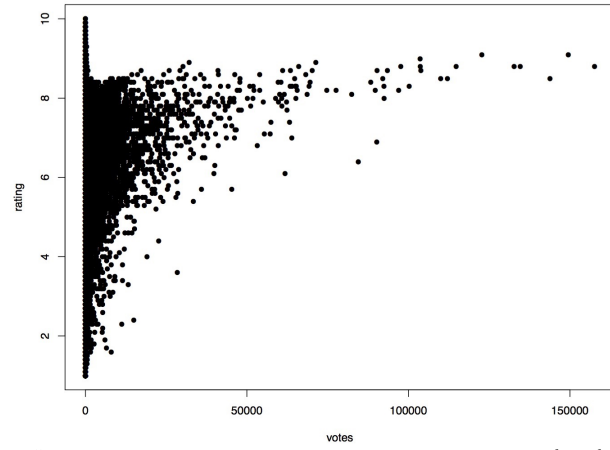


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Movies (3)



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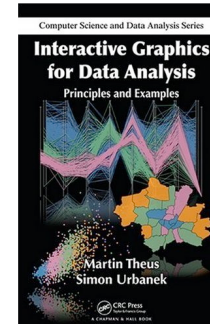
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Afternoon reading

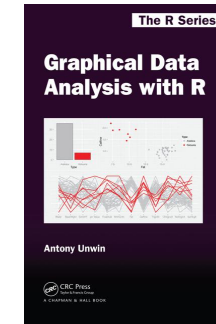


1.30 pm



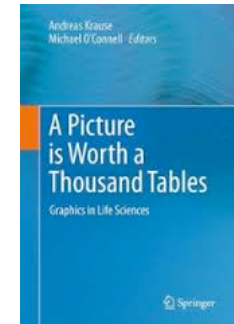
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2.15 pm



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4.05 pm



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Summing up



- There are many reasons for drawing graphics
- There are no 'best' graphics
- Drawing many graphics has to be more than just drawing many graphics
- Vary graphics and combine them into a narrative
- Be an active graphic viewer

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