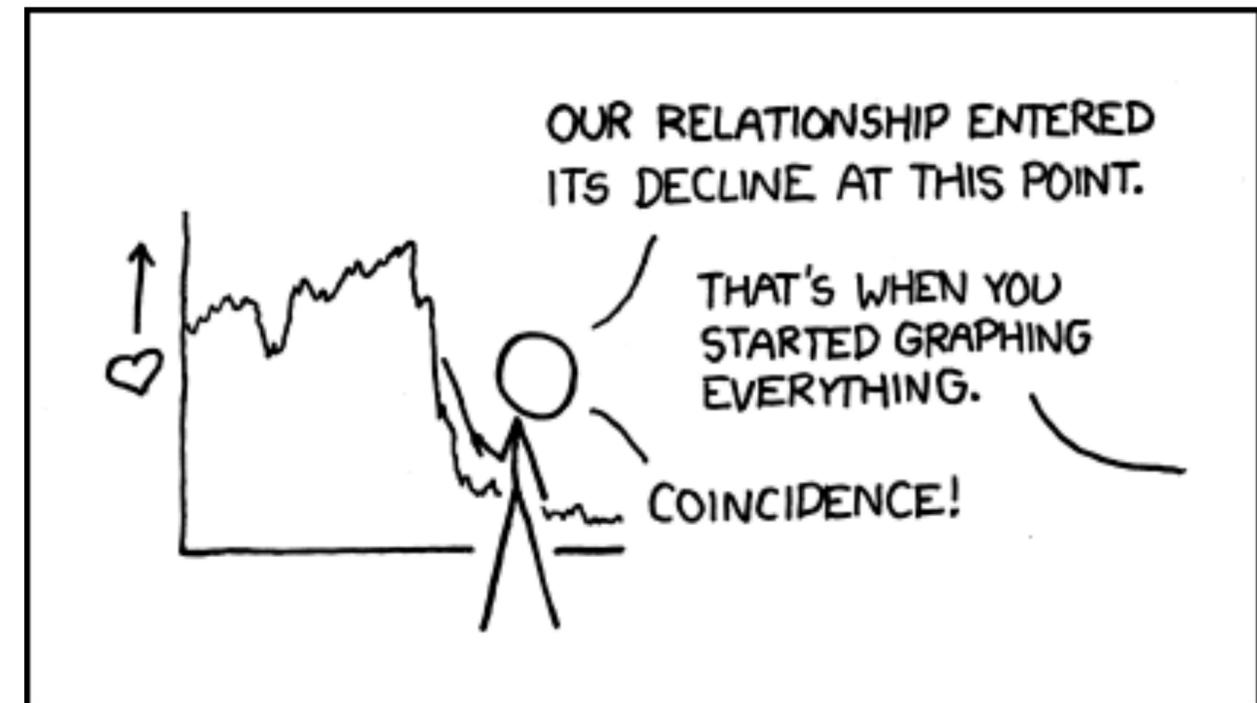


CS-5630 / CS-6630 Visualization for Data Science

How to Critique a Vis

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Announcements

No Class Next Tuesday
Office hours by Trang,
Pranav

Mid-Term Exam run by
Jason Wiese + TAs

The image shows a screenshot of the IEEE VIS 2017 website. The top banner features the text "VIS 2017" in large white letters on a red and orange background, with "VAST • INFOVIS • SCIVIS" and "1-6 October 2017 Phoenix, Arizona USA" below it. Logos for IEEE VGTC, IEEE, and IEEE Computer Society are in the top right. Below the banner is a navigation menu with sections: "Welcome" (with "Like 751" and "Follow" buttons), "Registration and Travel" (with links for Hotel Information, Conference Registration, Visa Assistance, Travel Directions, Things to do in Phoenix, Downtown Phoenix, and Restaurants), "Participant Information" (with links for Speakers and Presenters, Fast Forward and Video Previews, Inclusivity, Vis Buddies, Job Fair, and Room and Ride Sharing), "Full Program" (with links for Full Program, Pocket Program, and Practitioner Guide), and "IEEE VIS Sessions" (with links for Keynote Address, Capstone Address, Accepted Papers List, Papers Sessions, Posters, Workshops, Tutorials, Panels, Doctoral Colloquium, Meetups, FF Videos, and SciVis Contest). The main content area has a "Welcome" section with a note about Arizona's daylight savings time, "Quick links" for program PDFs, and information about practitioner guides. The right sidebar lists "Supporters" categorized by Diamond (Tableau, NSI), Gold (VALCRI, Microsoft, IBM Research, Intel), and Silver (Cray, uncharted).

1. Identify Data, Tasks / Intentions

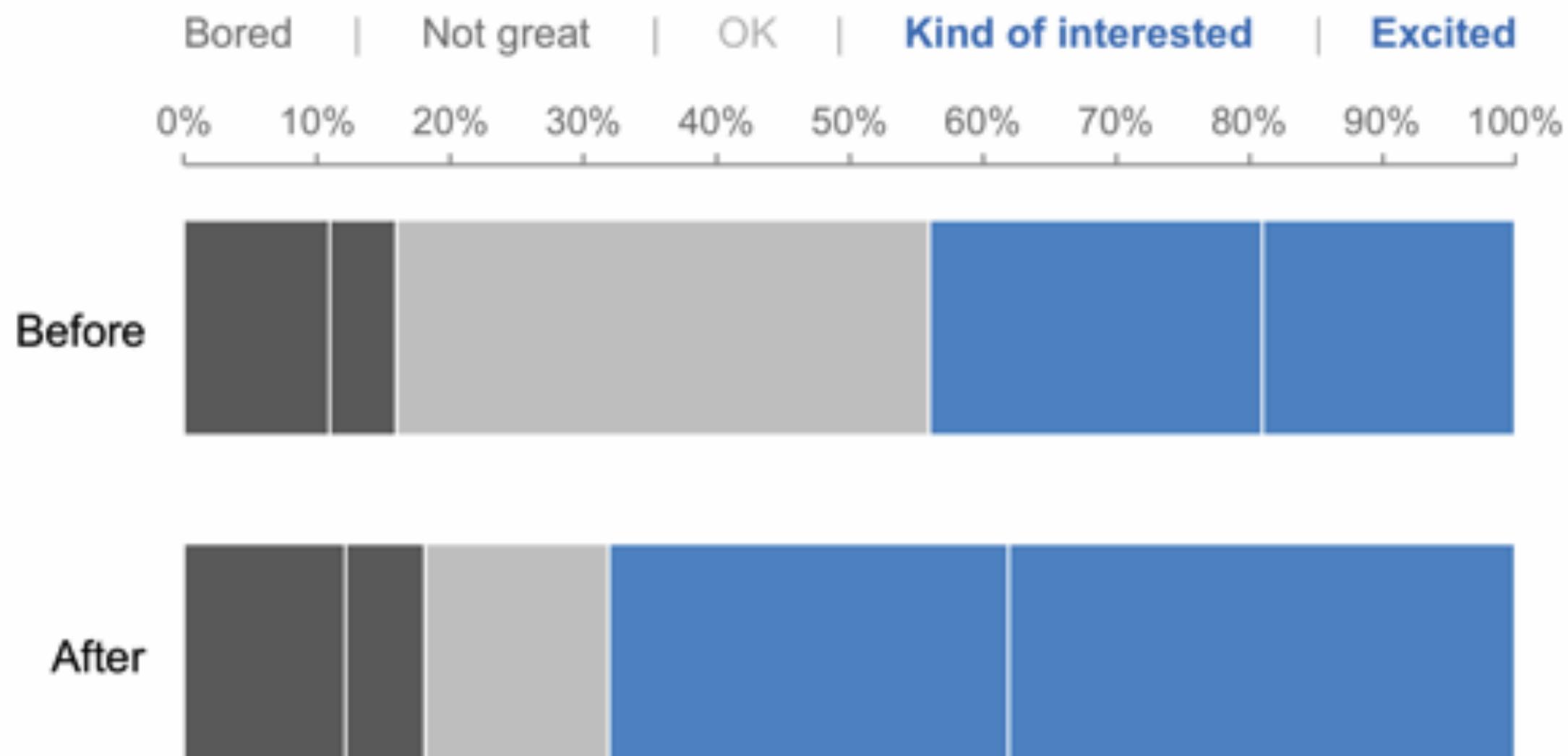
E.g., quantitative, time-series -> change over time

qualitative labels (often supplementary)

quantitative, two conditions -> compare

....

How do you feel about science?



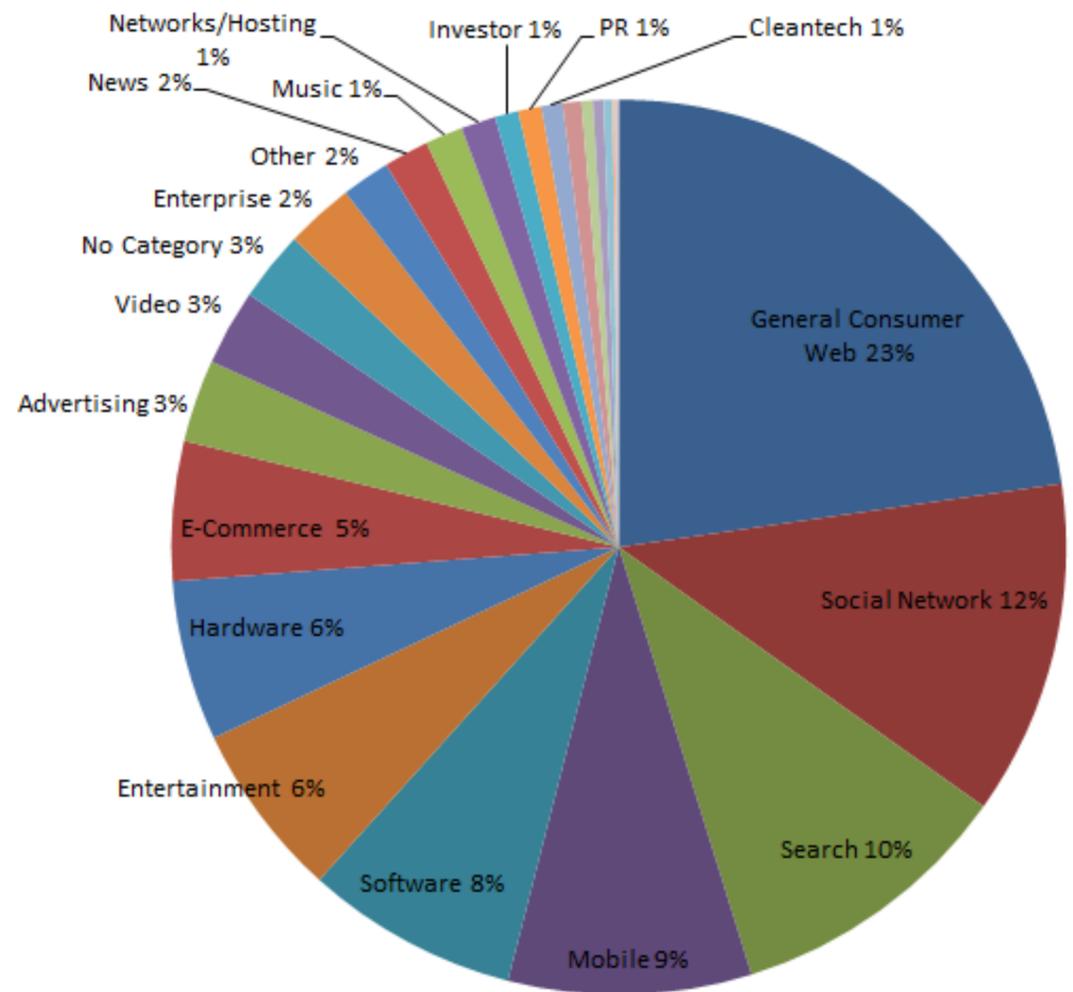
2. Identify Marks, Channels

Mark: encodes “existence” of item

point, line, shape, ...

Channels: encodes “magnitude of dimension associated with an item

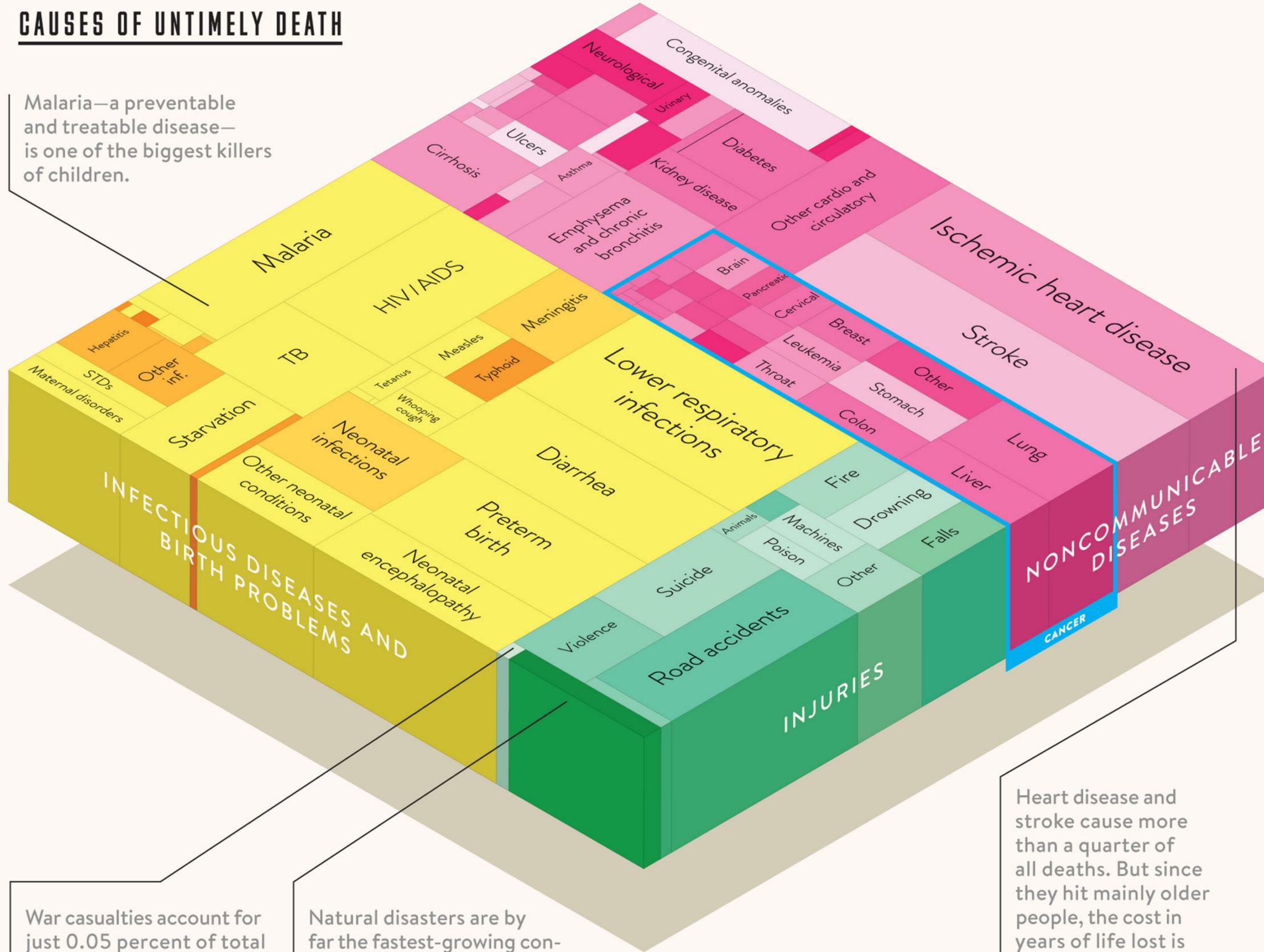
position, size, saturation, color, ...



Share of coverage on TechCrunch

CAUSES OF UNTIMELY DEATH

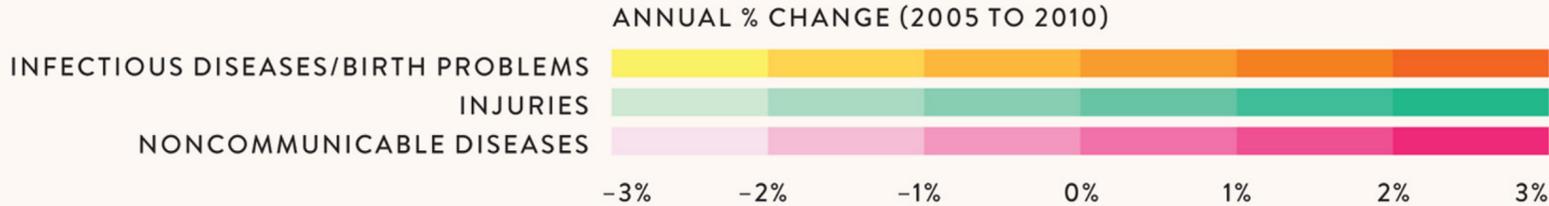
Malaria—a preventable and treatable disease—is one of the biggest killers of children.



War casualties account for just 0.05 percent of total life-years lost annually.

Natural disasters are by far the fastest-growing contributor to the death toll.

Heart disease and stroke cause more than a quarter of all deaths. But since they hit mainly older people, the cost in years of life lost is relatively small.

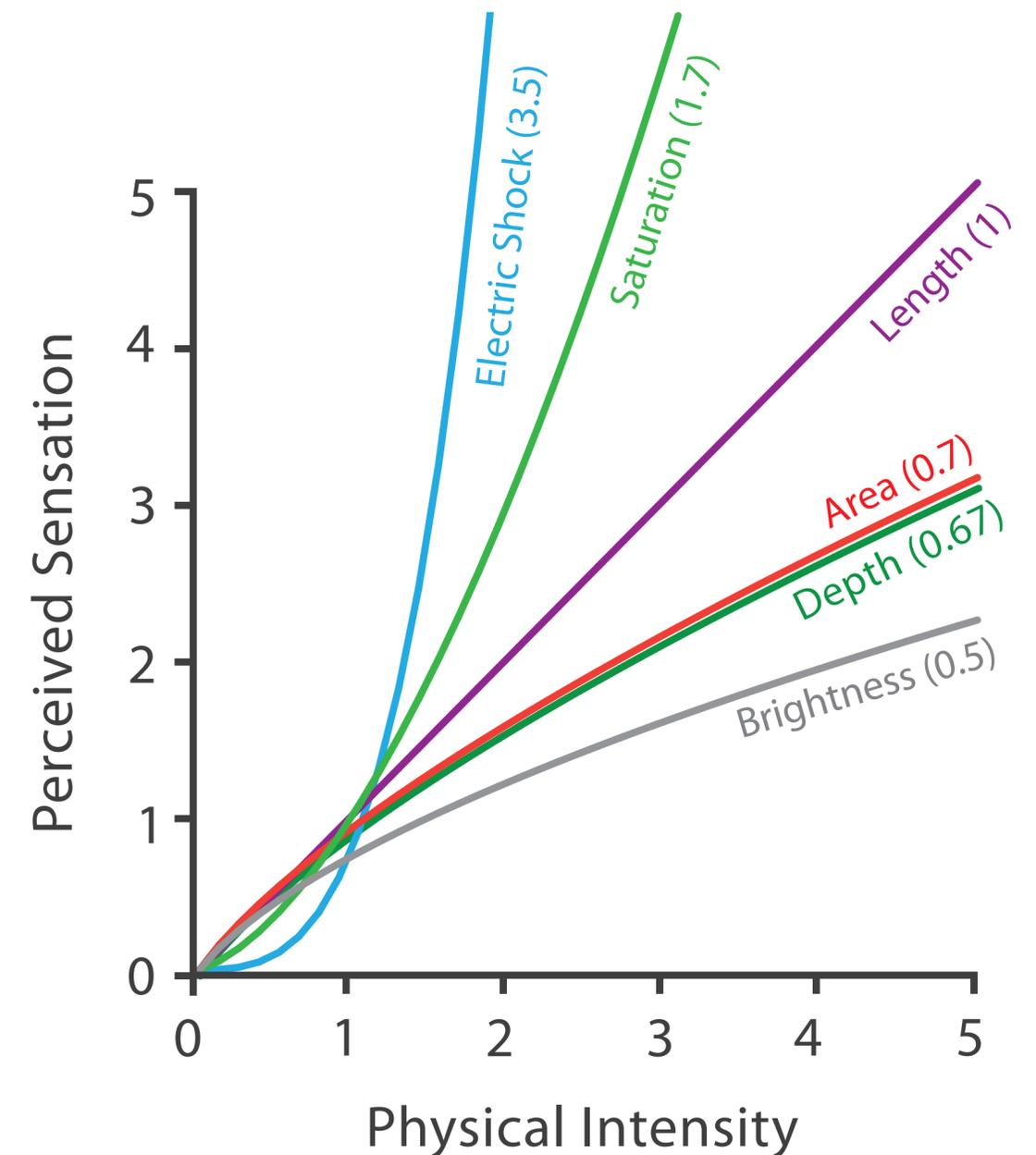


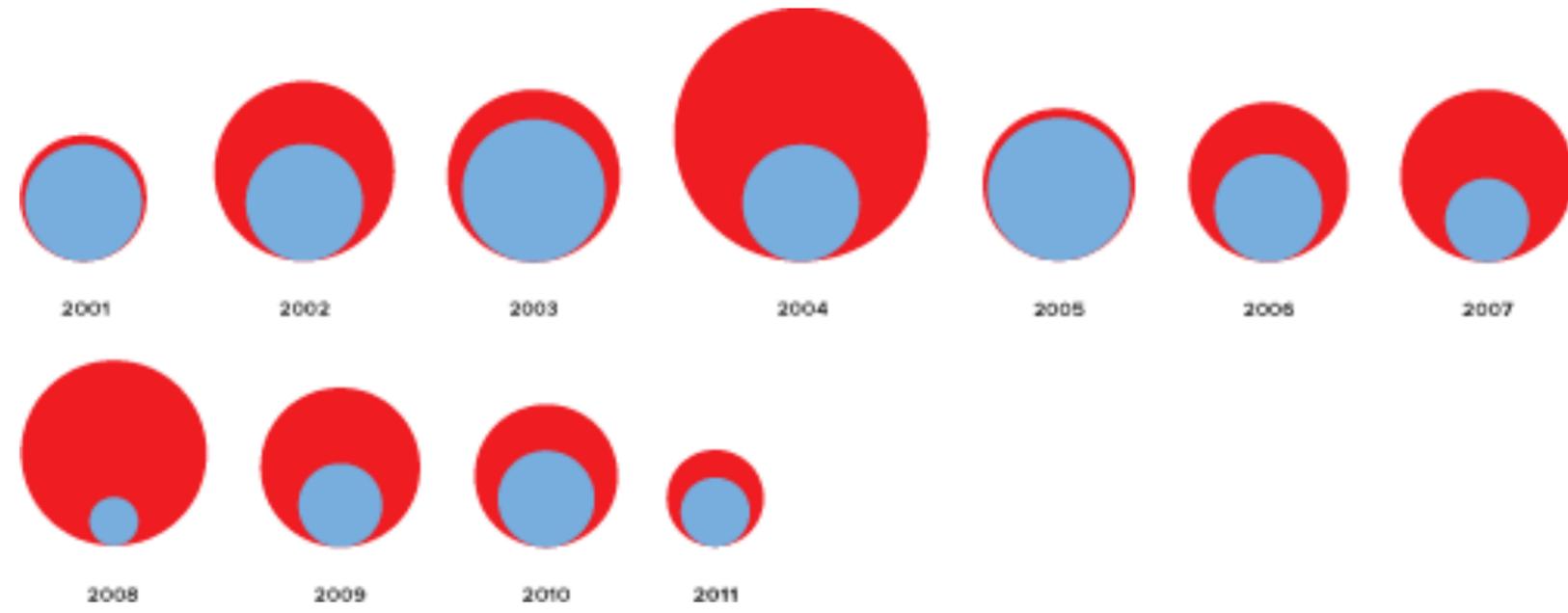
3. Is Effectiveness Principle Followed?

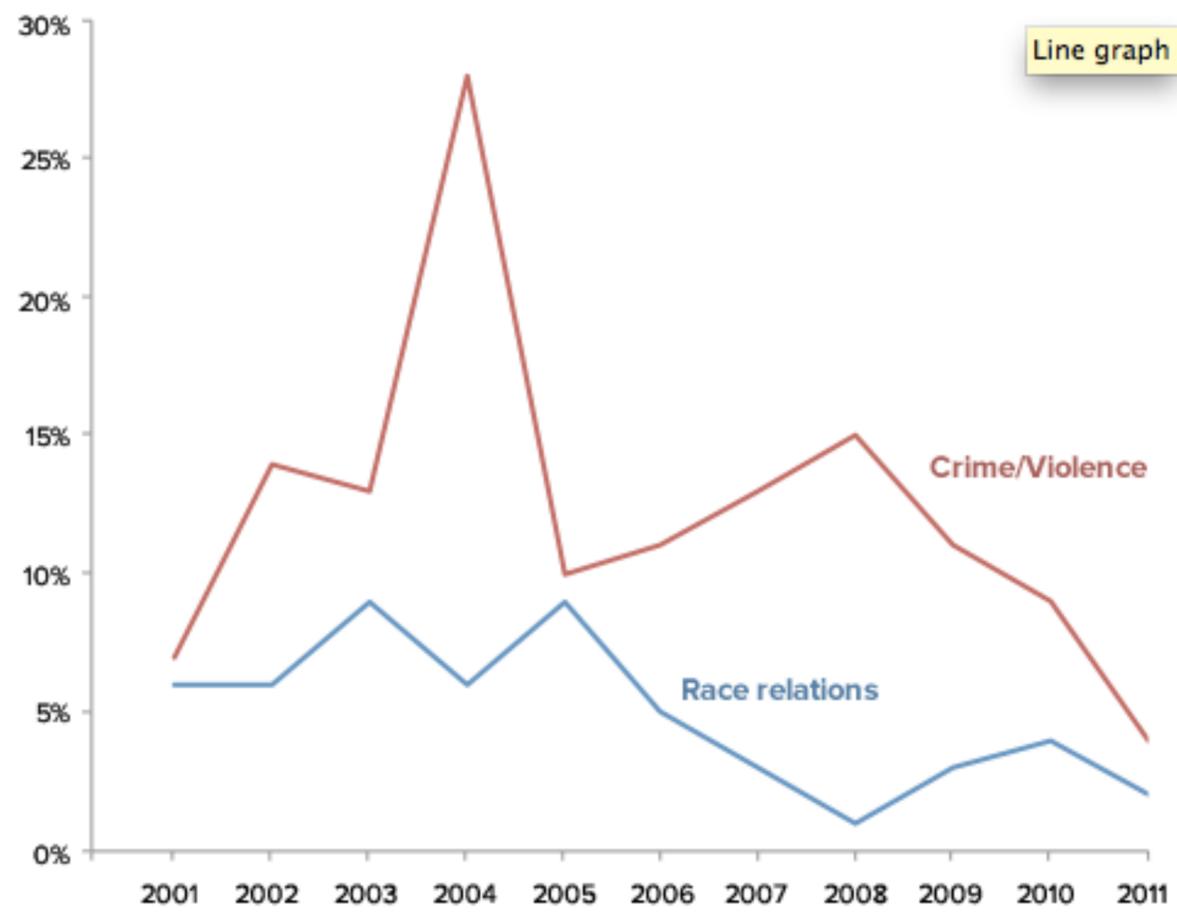
Use the Best Visual Channel Available for the Most Important Aspect of your Data

Are all visual channels appropriate?

Steven's Psychophysical Power Law: $S = I^N$





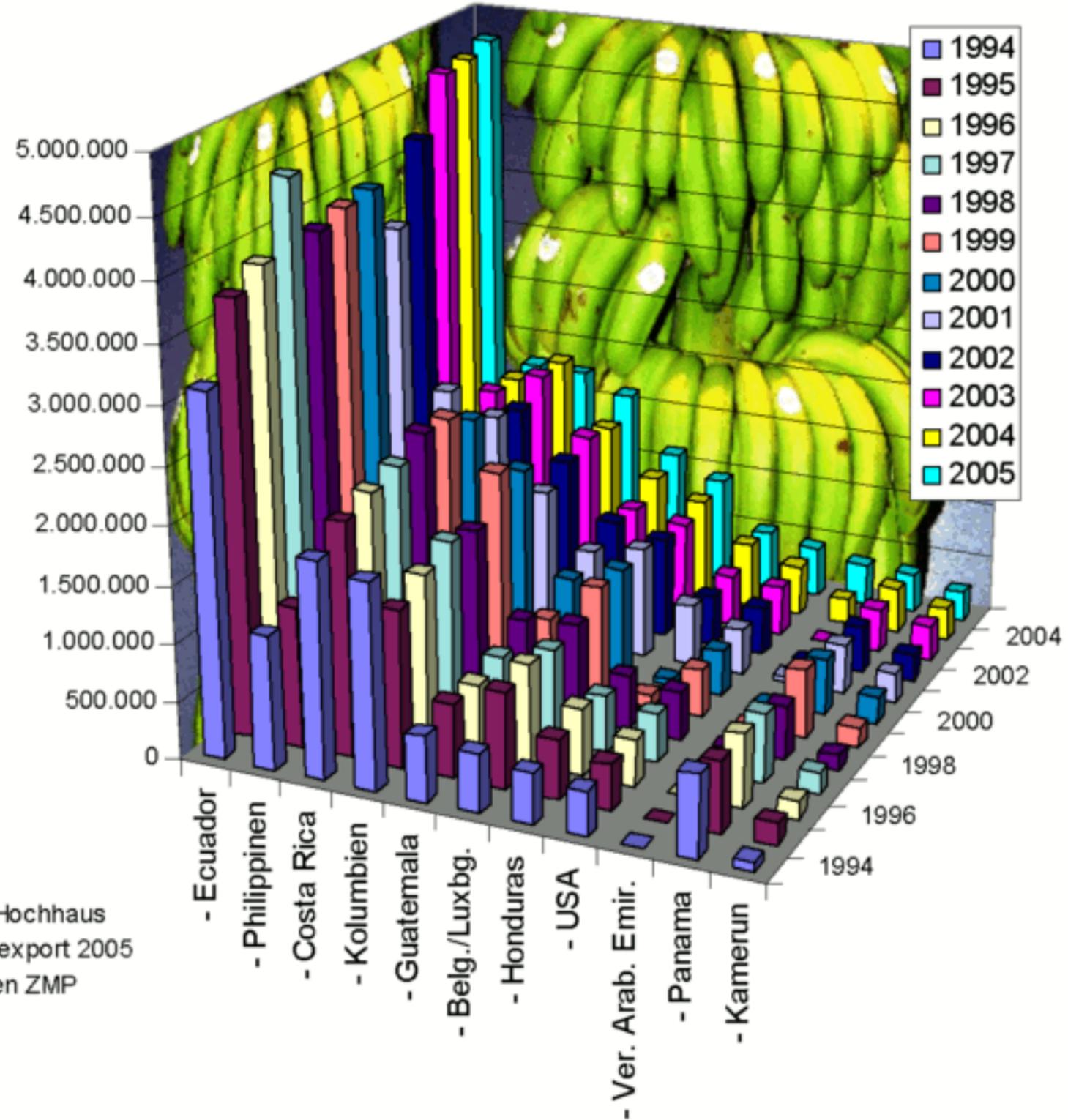


4. Is the Expressiveness Principle Followed?

The visualization should show all of the data,
and only the data

If there are violations, are they justified (useful chart junk)?

Export von Bananen in Tonnen von 1994-2005



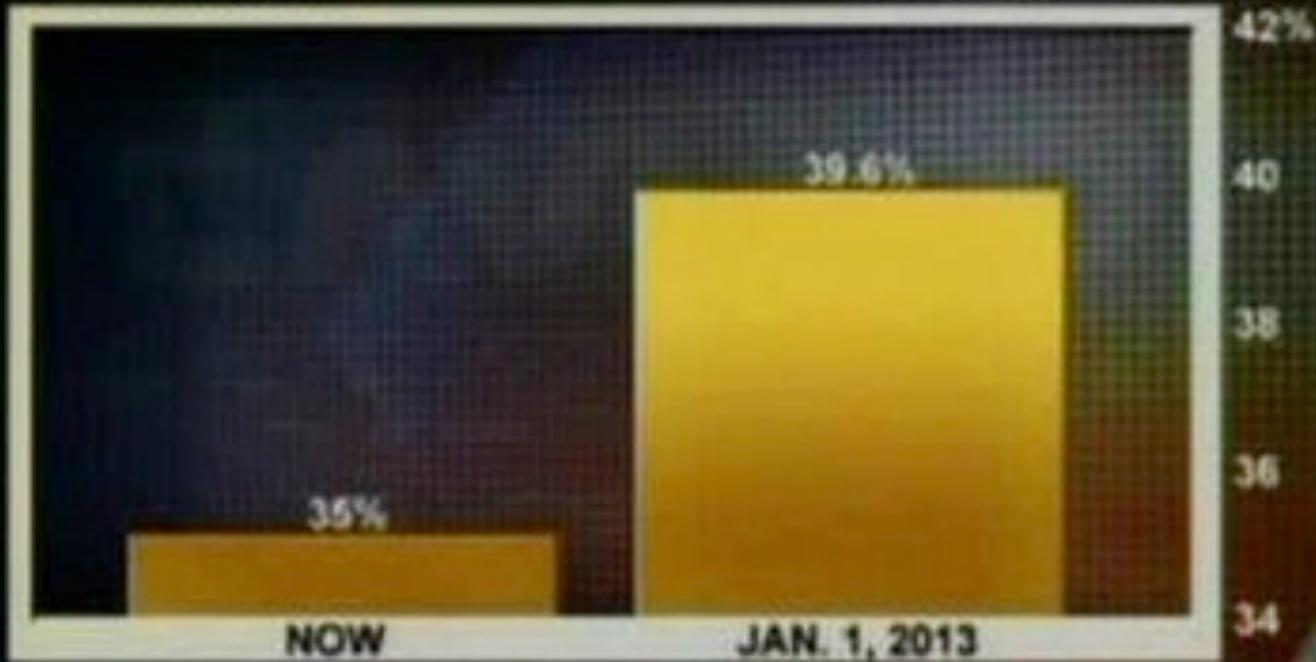
Dr. Hochhaus
Banexport 2005
Daten ZMP

5. Scales

Are the scales appropriate

IF BUSH TAX CUTS EXPIRE

TOP TAX RATE



8:01 p ET

FOX
BUSINESS

TOP STORIES

TECHNOLOGY

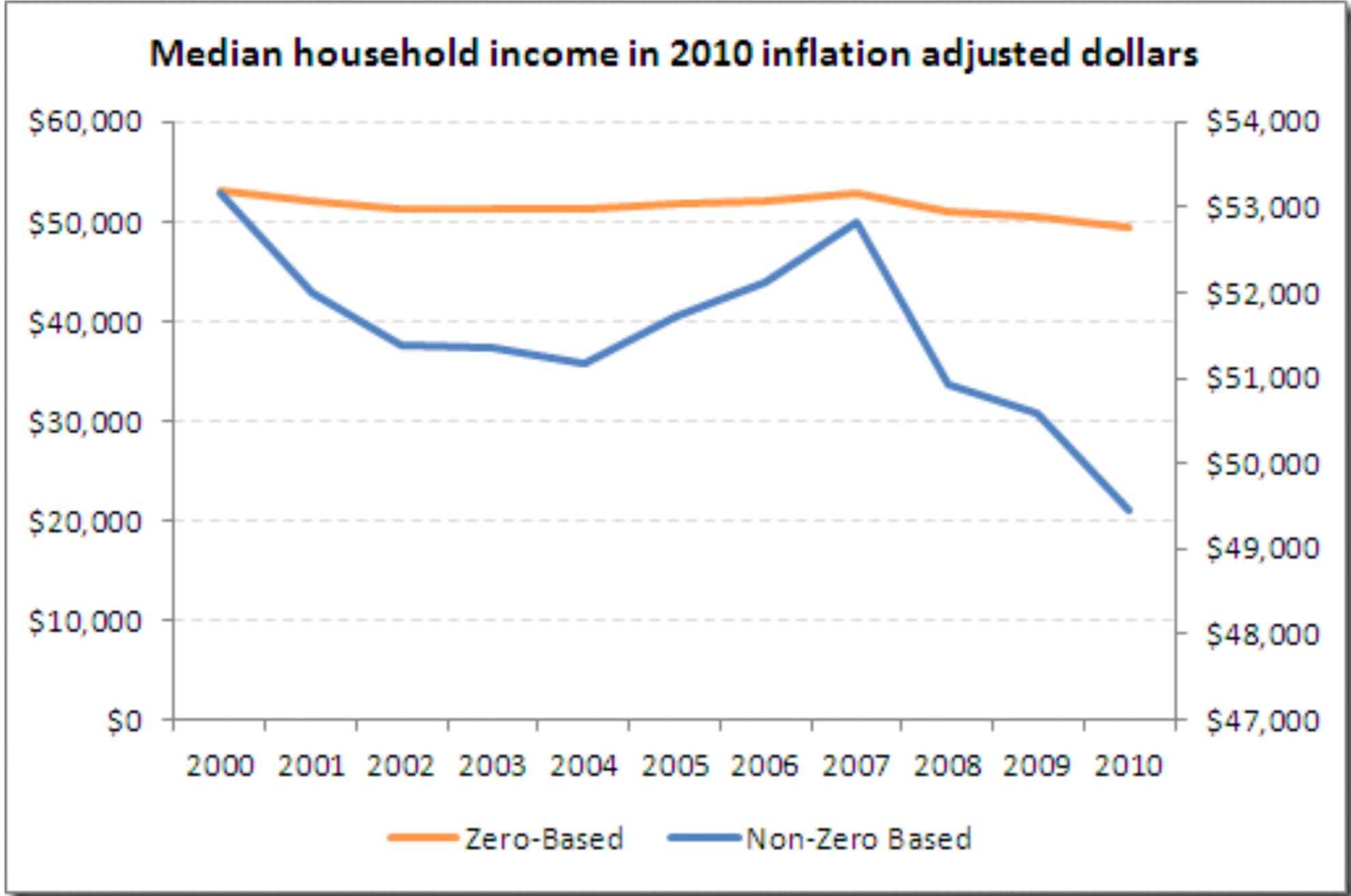
CONSUMER

WITH THE JUSTICE DEPARTMENT AND ACQUIRES FULL T

DOW 13008.68 ▼ 64.33

S&P 1379.32 ▼ 5.98

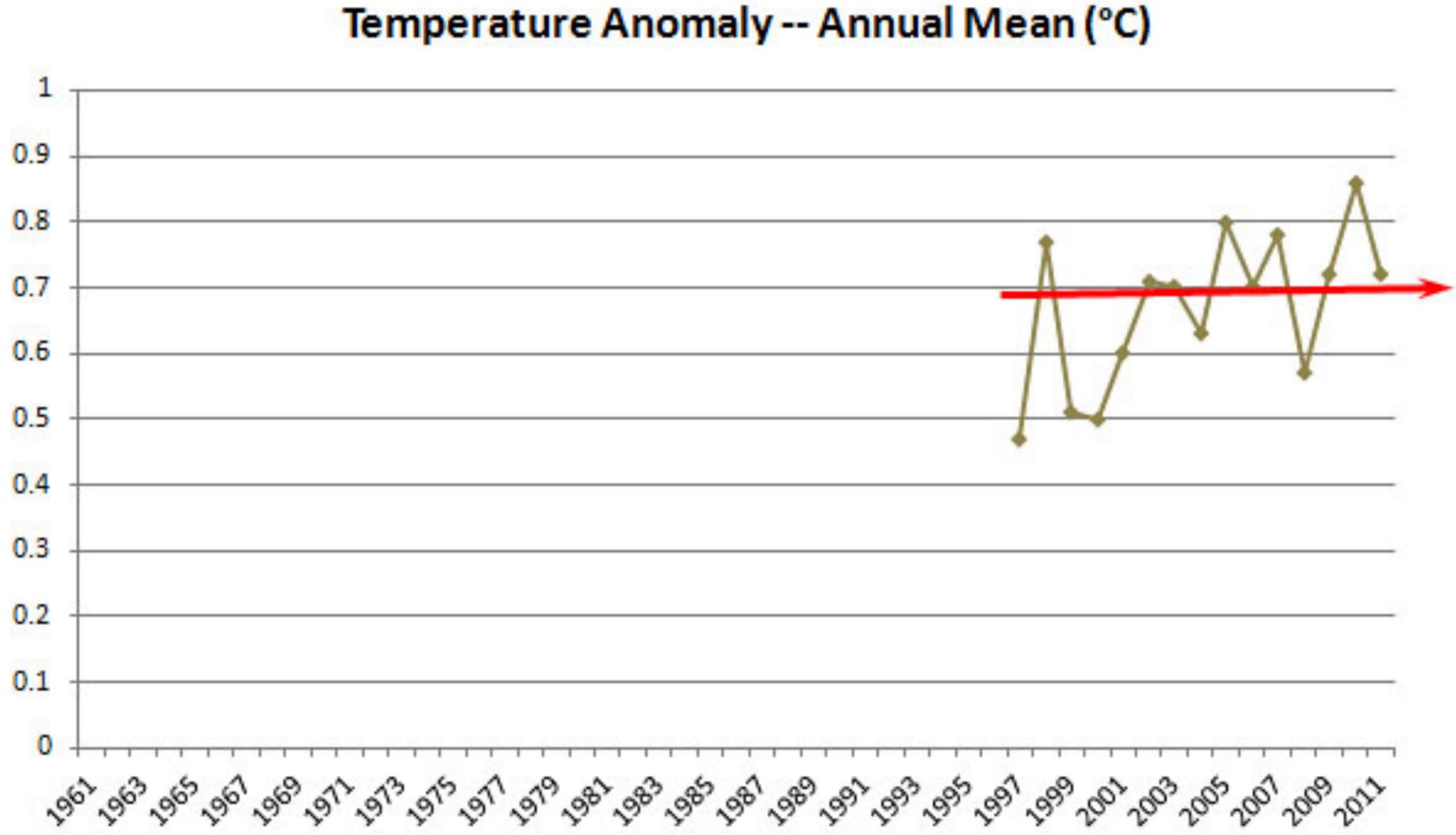
NASDAQ 2939.52 ▼ 6.32



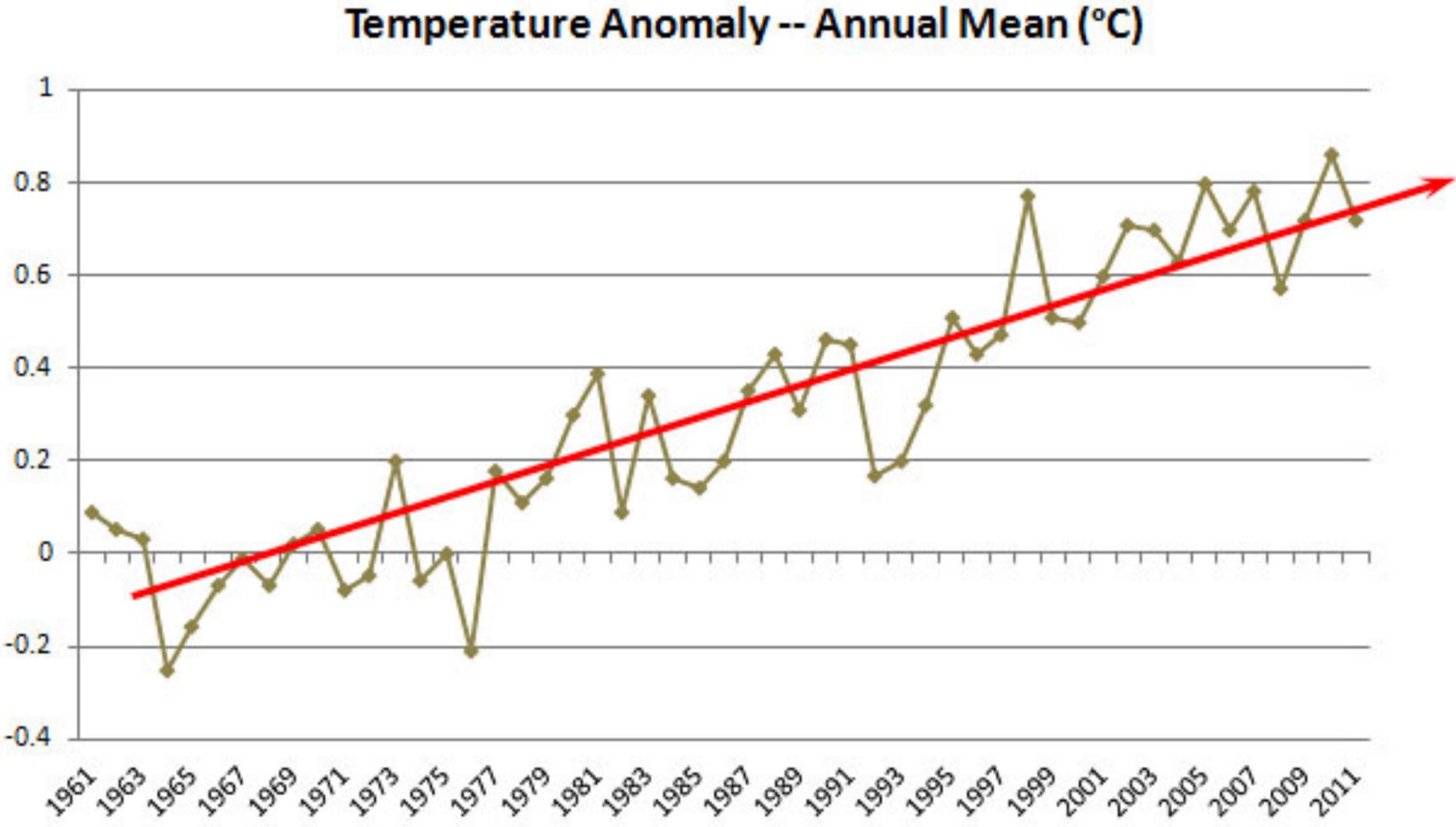
6. Context

Is the data shown in the appropriate context

Global Warming?



Global Warming - Frame the Data



7. Would derived data be better?

E.g., show change instead of absolute values

Show distribution instead of data points

8. Other Guidelines

No Unjustified 3D

Time progresses linearly

Perception: color, colorblindness, shadows, etc.

Use of gestalt principles

Use of popout

Use of interaction / animation

Appropriate legends, labels