

# Topics in Data Visualization

## Adventures In Bad Graphics

Jun 25 2014

Charlotte Wickham

[vis.cwick.co.nz](http://vis.cwick.co.nz)

# Some of the guiding principles

If the “story” is simple, **keep it simple.**

**Tell the truth.**

Graphical excellence is that which gives to the viewer the greatest number of ideas in the shortest time with the least ink in the smallest space.

# **Rule #1:**

Any guideline can be ignored,  
but you have to know you  
are ignoring it.

Find people with the same plot.

Introduce yourselves.

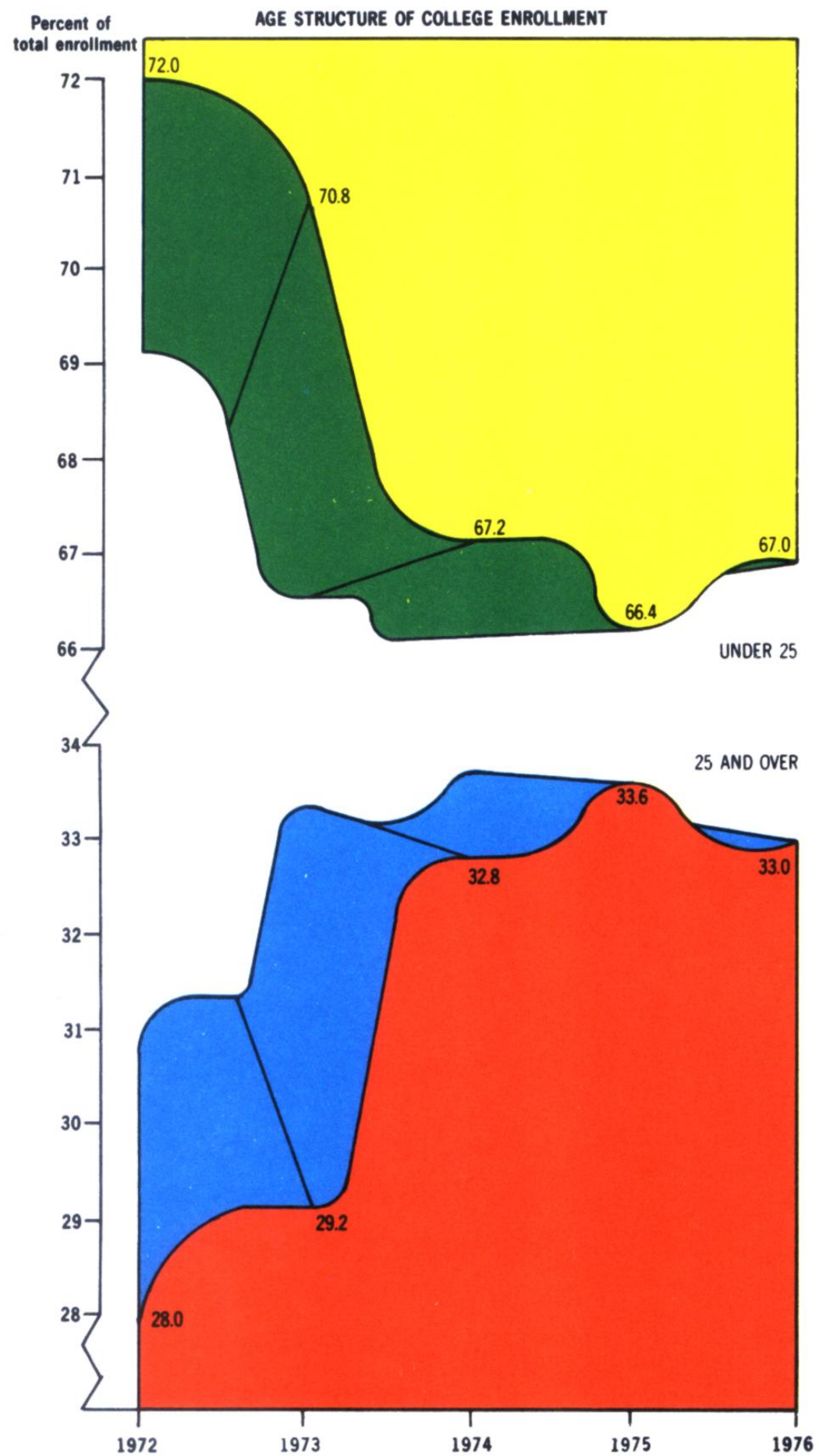
## Questions for each plot

What data is being displayed? What would that data look like in a table?

Is the data presented in a clear manner?

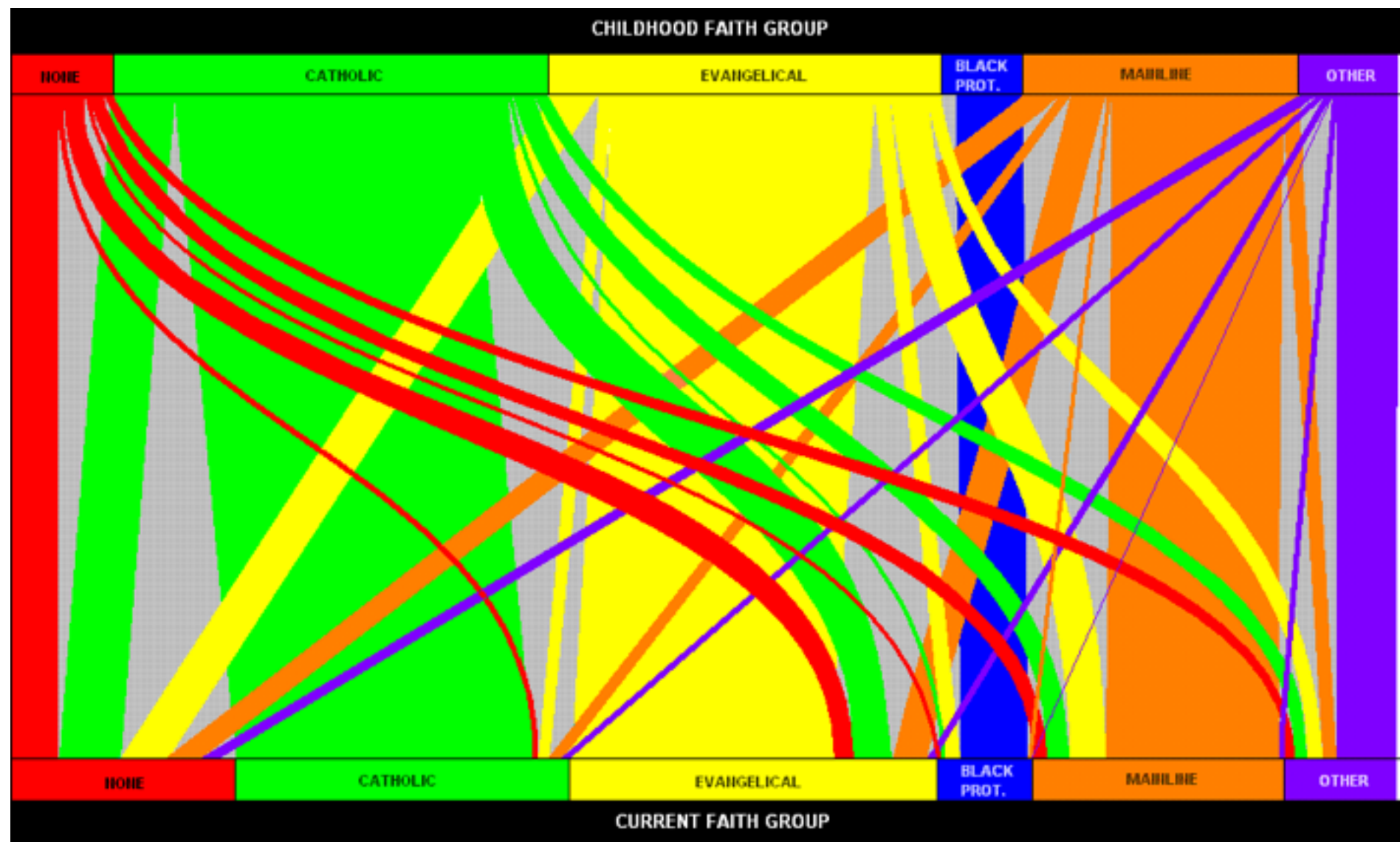
Is the data presented in a truthful manner?

How could it be more clear/truthful?



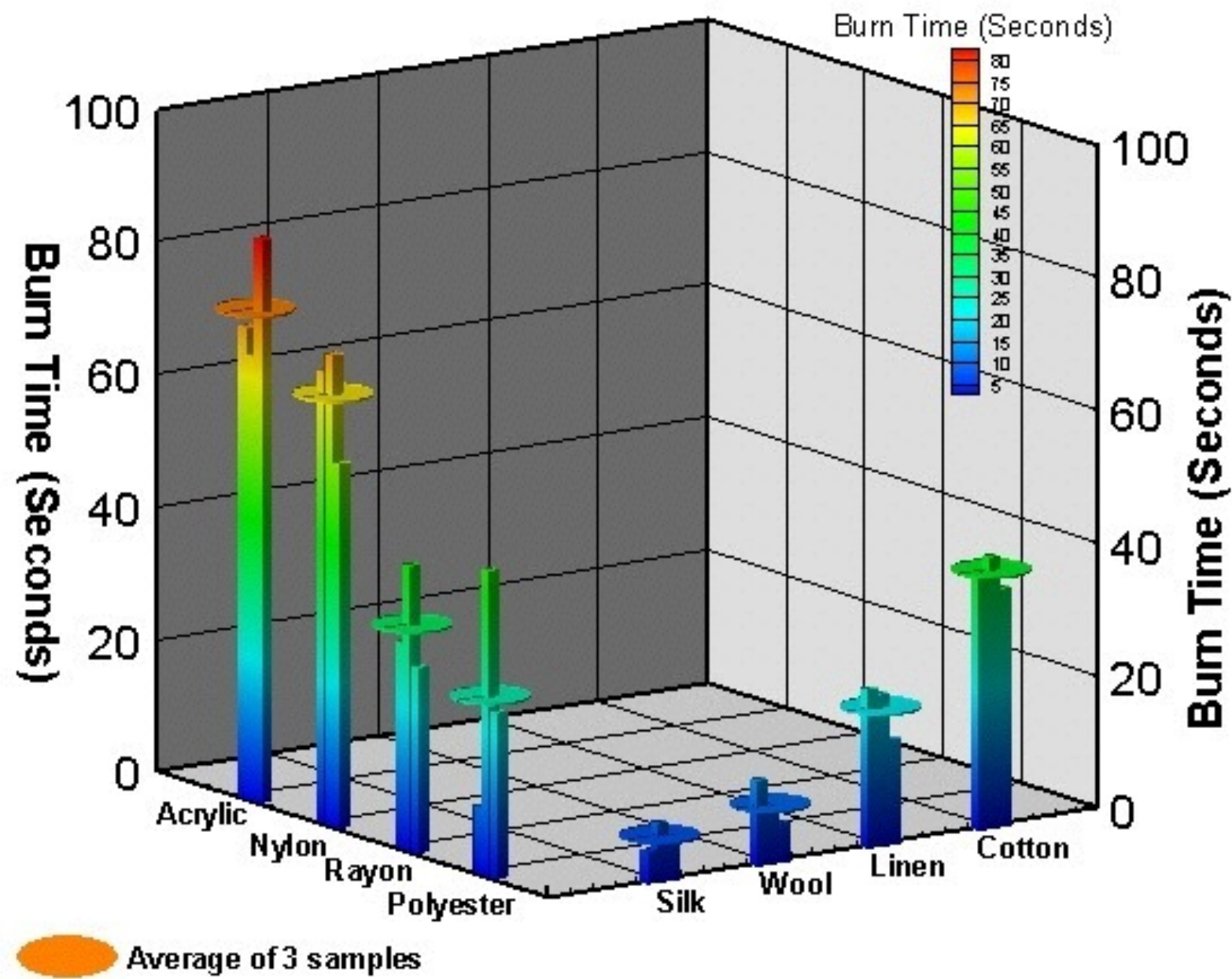
1.

2.

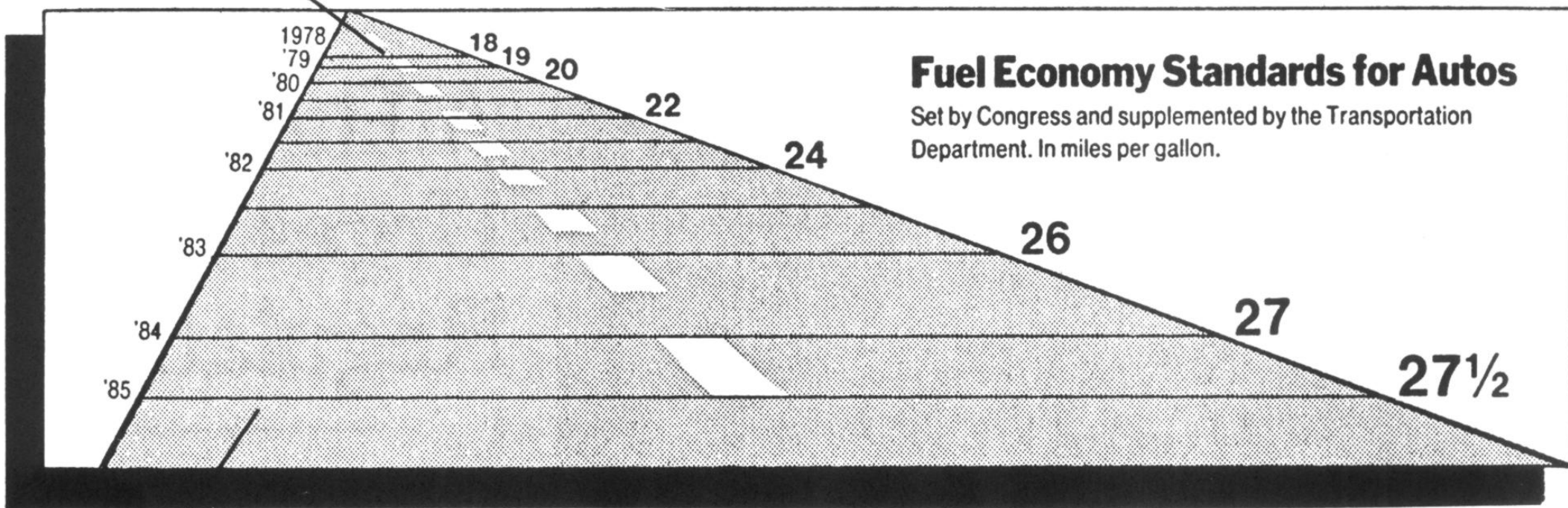


3.

### Natural Fabrics vs. Synthetic Fabrics



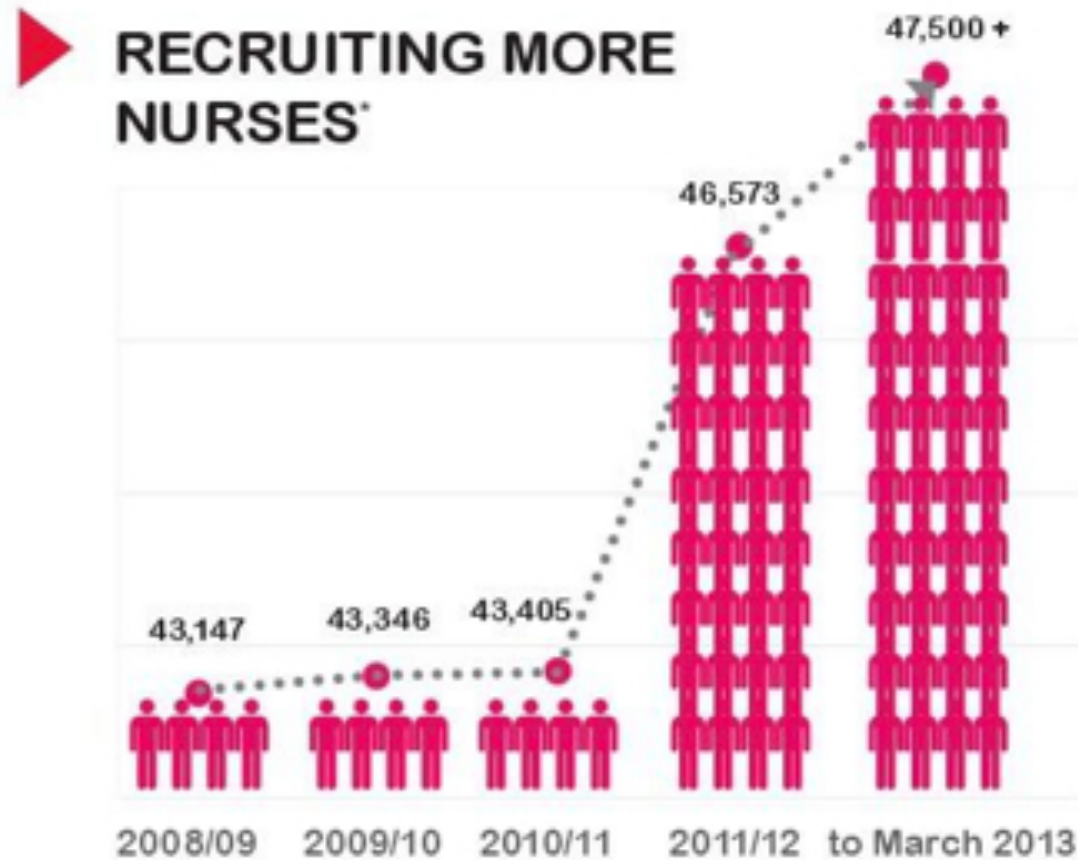




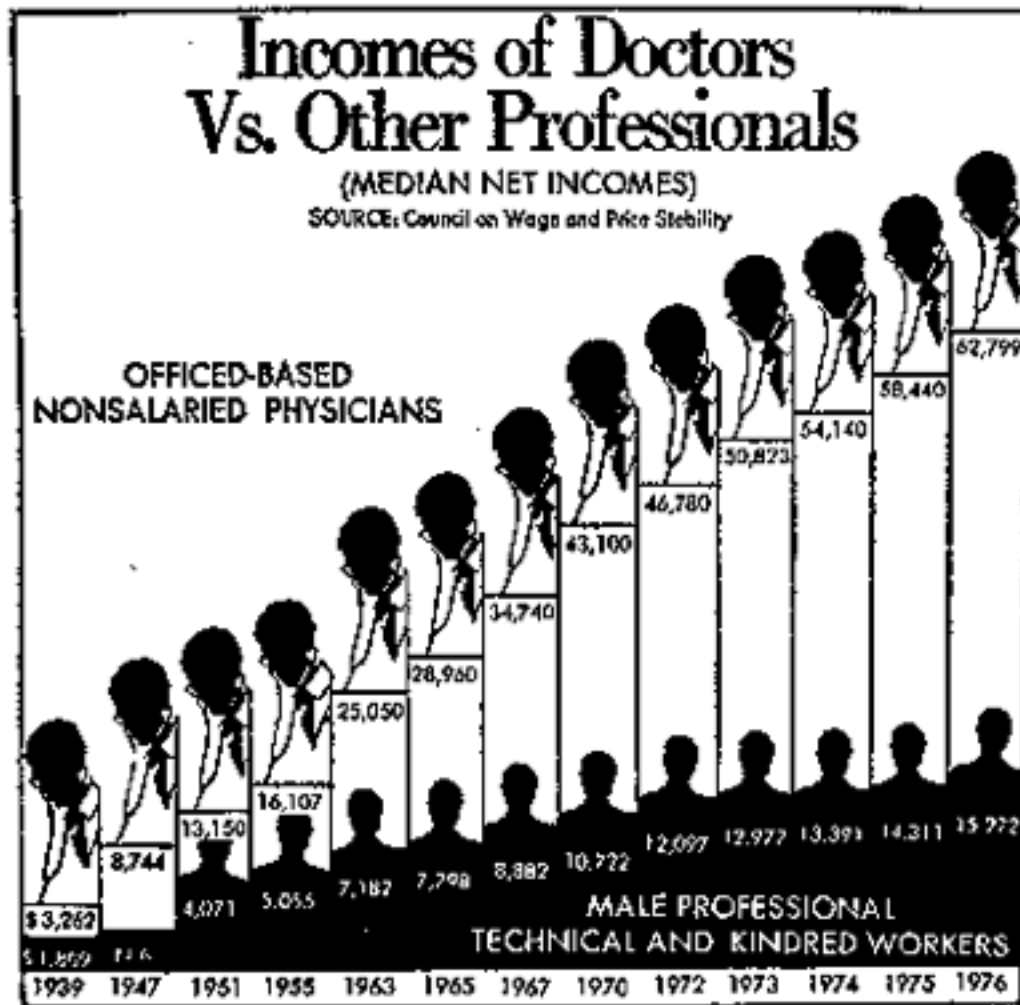


# The NSW Health system is...

5.



\* Nursing headcount figures at June includes non casual staff and 3rd schedule





1958 — EISENHOWER: \$1.00



1963 — KENNEDY: 94c



1968 — JOHNSON: 83c



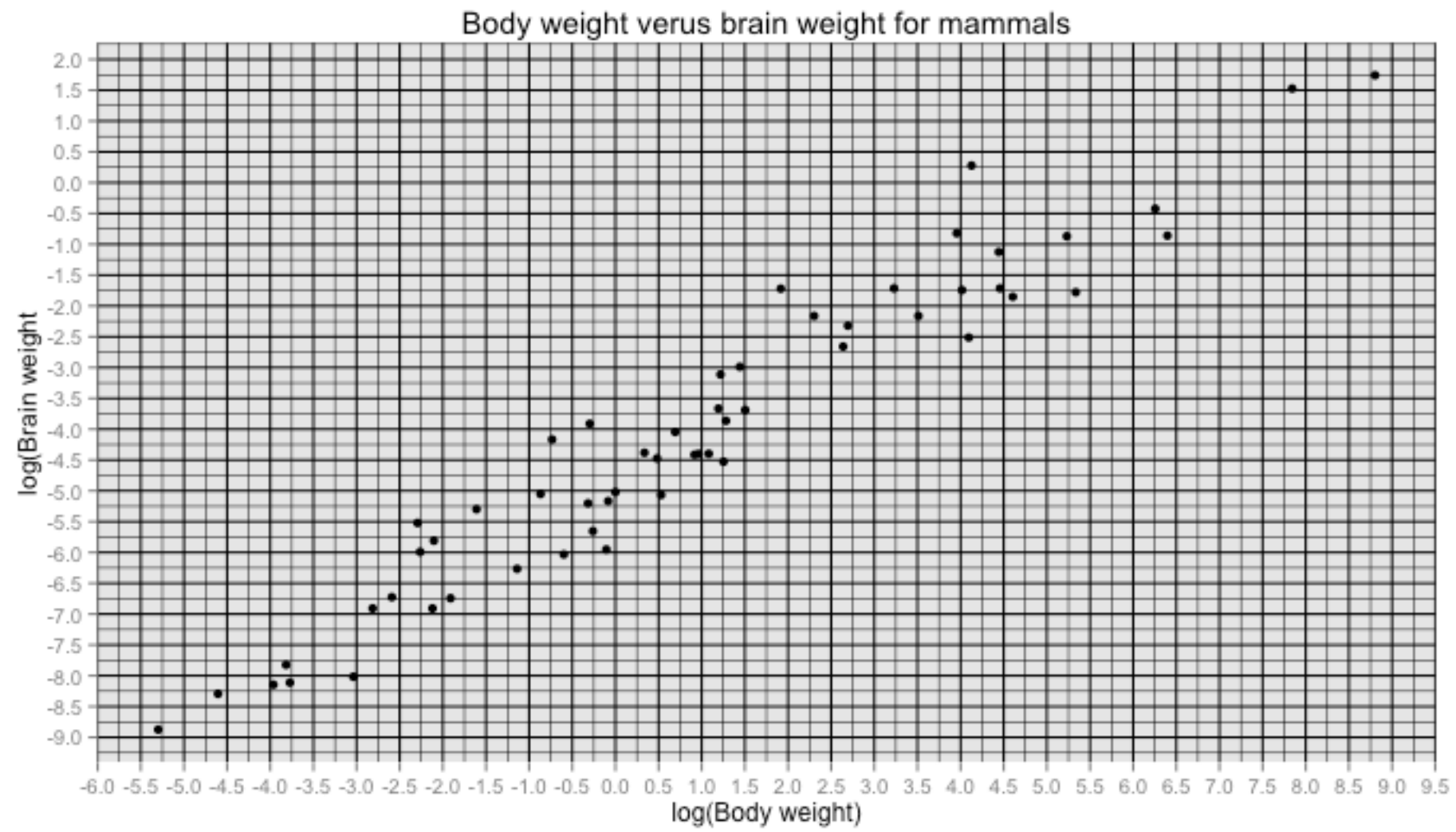
1973 — NIXON: 64c



1978 — CARTER: 44c  
(August)

## Purchasing Power of the Diminishing Dollar

Source: Labor Department



## **Keep things simple:**

Be judicious with ink

Don't use extraneous dimensions

## **Tell the truth:**

The representation of numbers should be proportional to the numbers themselves.

## **Go easy on the viewer:**

Clear labeling

Avoid full saturation colors

# ggplot2

By default:

- subtle grid

- forces you to use a coordinate system

You have to work very hard to:

- break axes/coordinate systems

- Get 3D effects

Sometimes the answer to “How do I do ... in ggplot2”  
is “You shouldn’t”

# Places to find bad graphics

The archives at:

<http://junkcharts.typepad.com/>

Google image search:

bad charts/plots/graphics/infographics



# Reading

## Chapter 1 & 2

*The Visual Display of Quantitative Information*,  
Edward Tufte

(available on 3 hour reserve in the library, borrow my copy for an hour or two, or buy it (~\$26) and read the whole thing)

Wainer, H. ***How to Display Data Badly*** The American Statistician, Volume 38, Issue 2, 1984

<http://www.jstor.org/stable/2683253>