

14. Graphical Distortion

by Dell

1930-1980:

“Graphics are meant to show the
obvious to the ignorant”

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Reader

Reader

stupid

doesn't care about data

only cares about what's nice

MONSTROUS COSTS

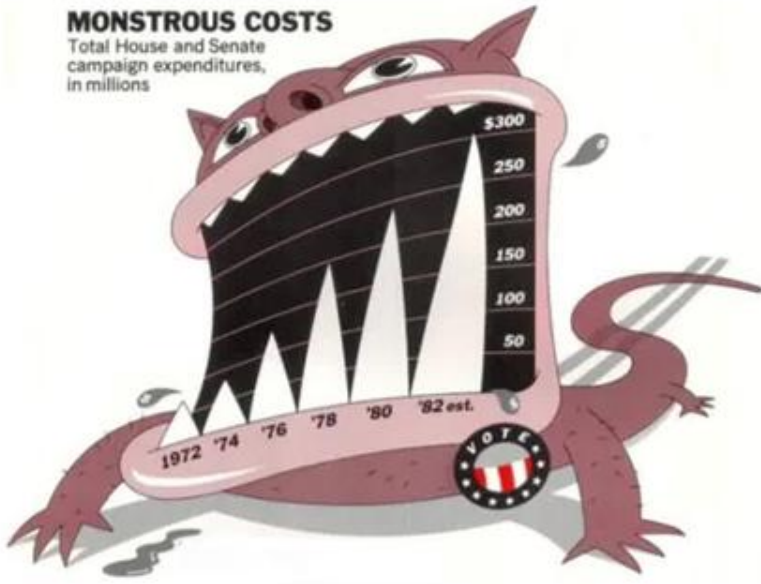
Total House and Senate
campaign expenditures,
in millions



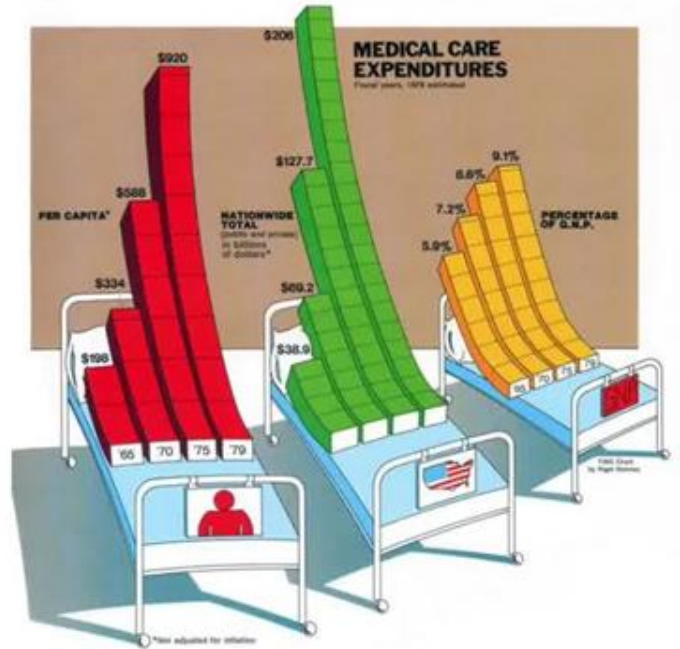
SOURCE: NIGEL HOLMES

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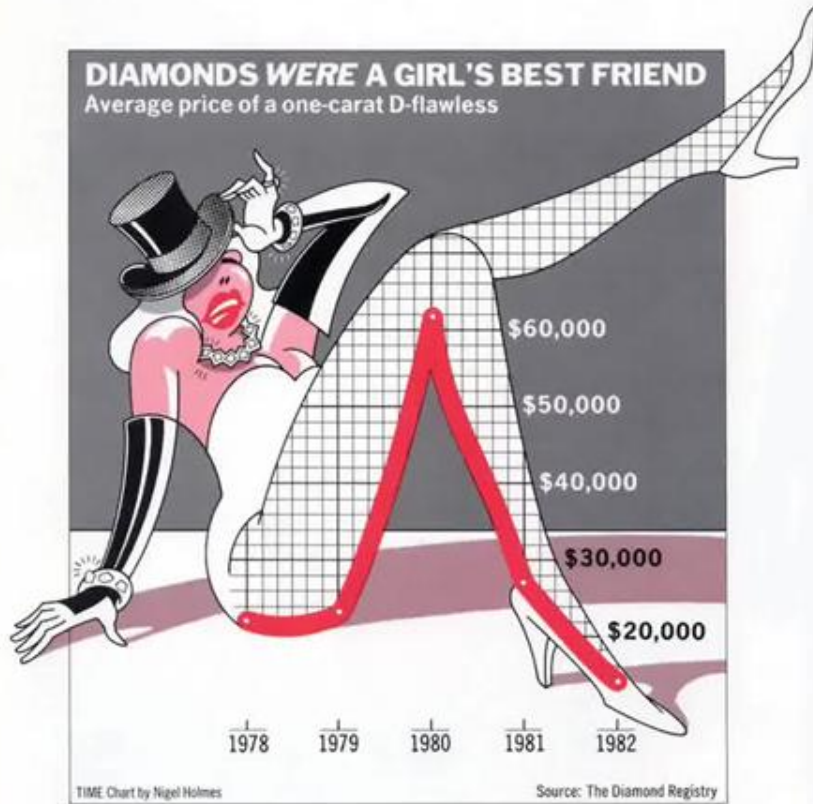
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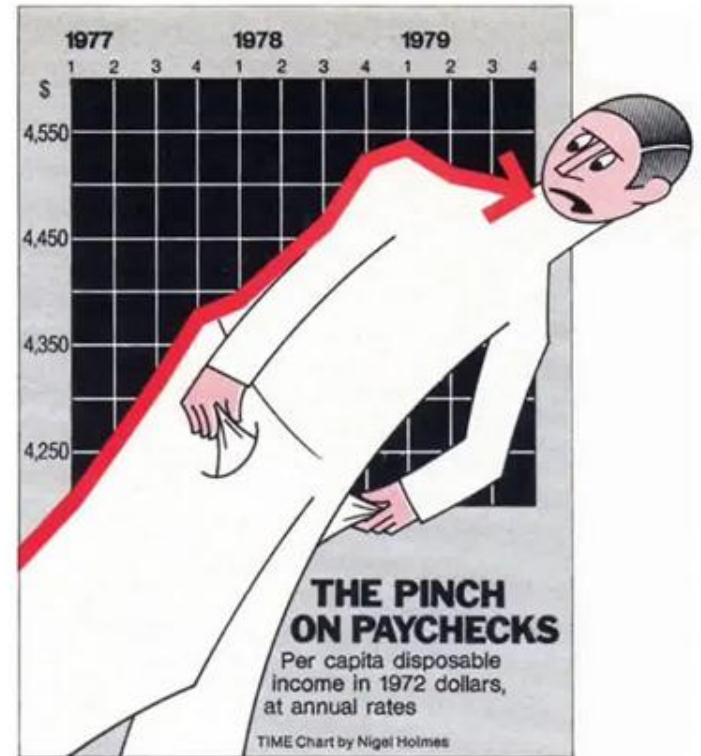
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INFOGRAPHICS

THE BENEFITS OF THEIR USE ONLINE

PRESENTERS WHO USE VISUAL AIDS ARE



43% MORE EFFECTIVE
IN PERSUADING AUDIENCE
MEMBERS TO TAKE A
DESIRED COURSE OF ACTION



90%
OF INFORMATION
TRANSMITTED TO THE
BRAIN IS VISUAL



40%
OF PEOPLE
RESPOND BETTER TO
VISUAL INFORMATION
THAN TEXT

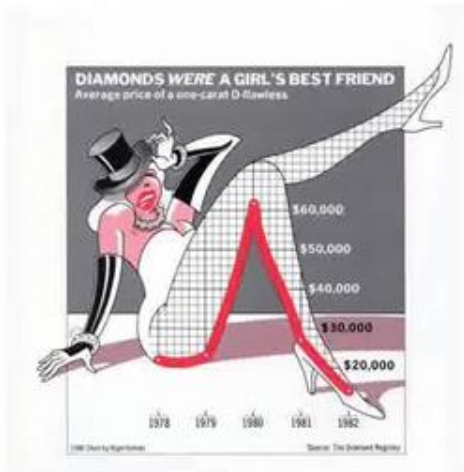


TEXT = SHORT TERM MEMORY
IMAGES = LONG TERM MEMORY



IT IS MUCH EASIER TO SHOW A CIRCLE
THAN DESCRIBE IT

SOURCE: VISUALLY



INFOGRAPHICS

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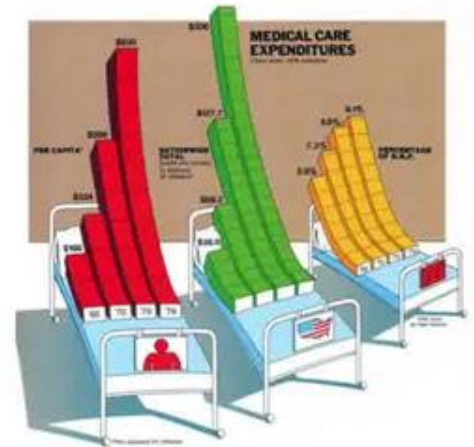
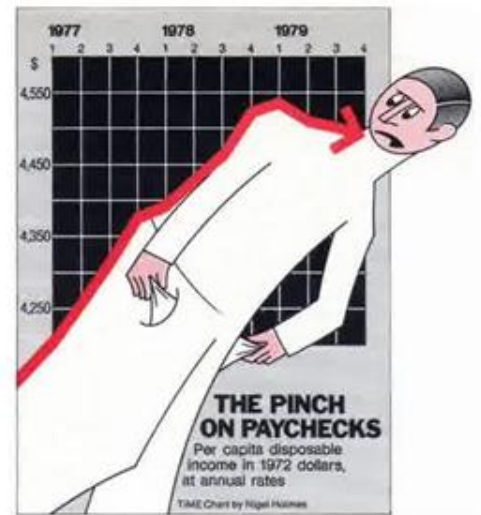
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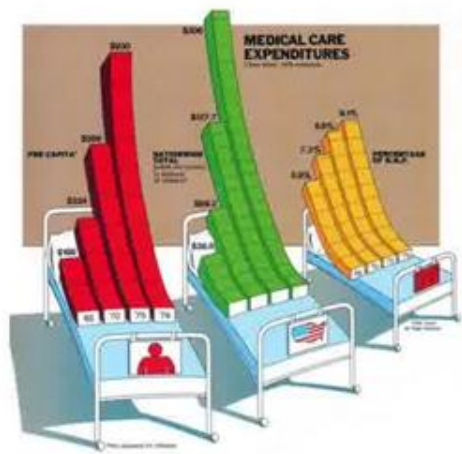
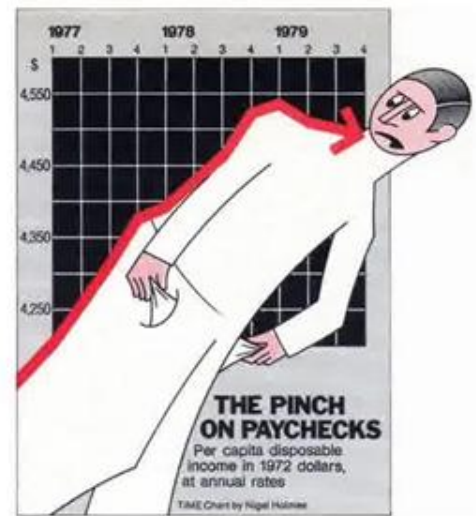
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A graphic does not distort if the **visual representation** of the data is consistent with the numerical representation.

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What is the “ **visual representation** ” of the data?

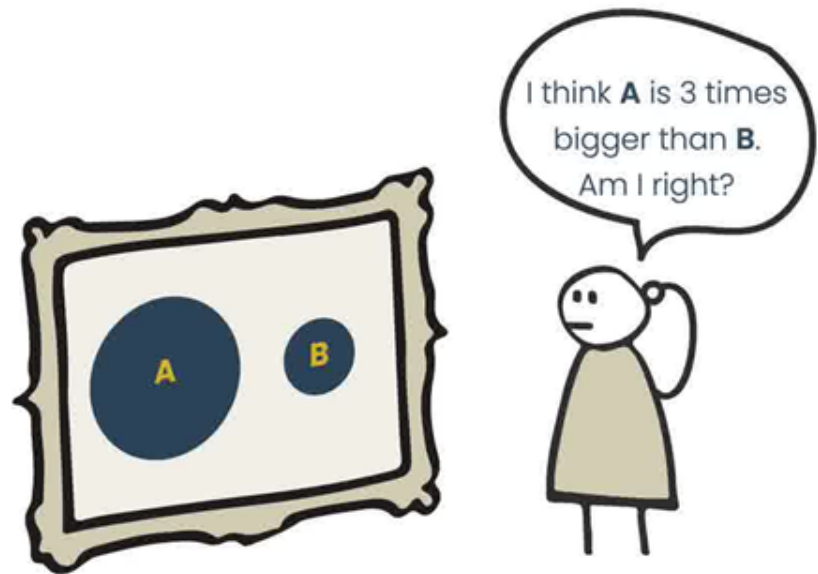
The way the data is **drawn** or the way this drawing is **perceived** by humans?

Graphical Distortion

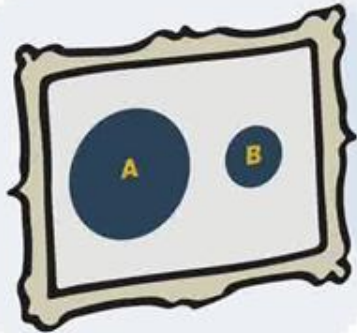
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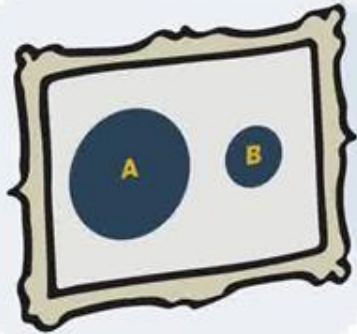
REAL AREA

I think **A** is 3 times
bigger than **B**.
Am I right?



PERCEIVED AREA

Graphical Distortion



REAL AREA

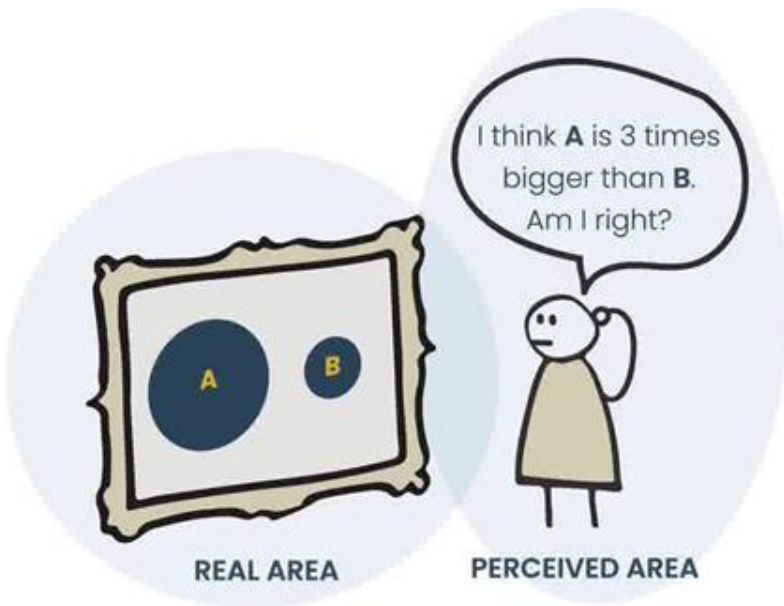
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The power law of theoretical psychophysics (Stevens, 1975)

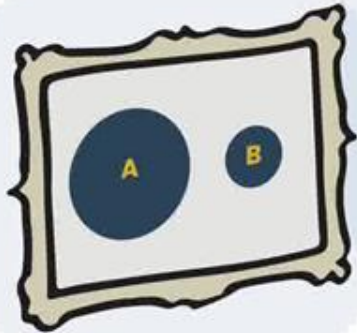
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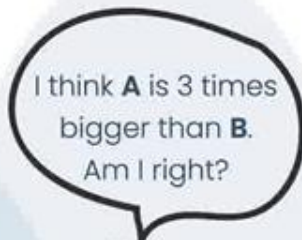
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$$\text{perceived area} = (\text{real area})^{\alpha}$$

Graphical Distortion



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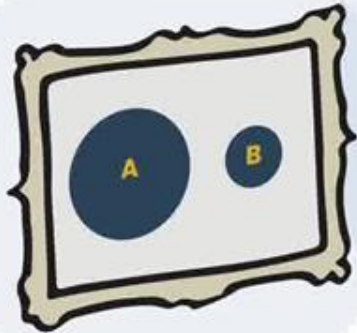
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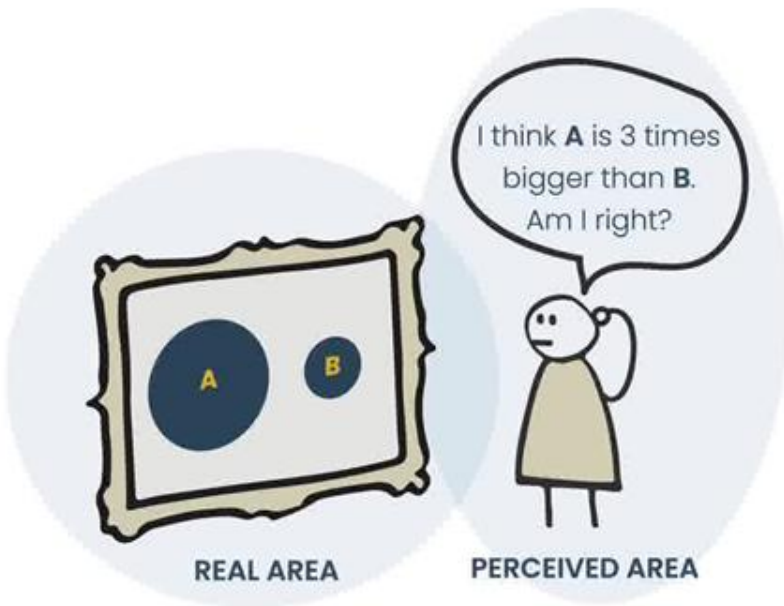
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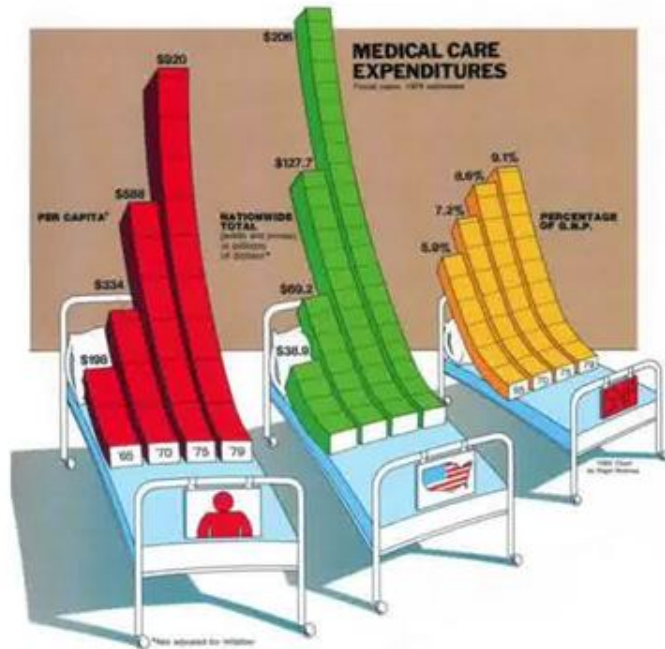
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AREAS OF CIRCLES LOOK SMALLER THAN THEY ACTUALLY ARE

From **exaggeration** to pure **deception**
there is a fine line.