

3

Chartjunk

Where design and function part ways

1) What letter of the alphabet is not on this page?

h x e
m i a v g
z
q b n p
f l
j y c w
k o r
t u
d

2) Evaluate the following expression

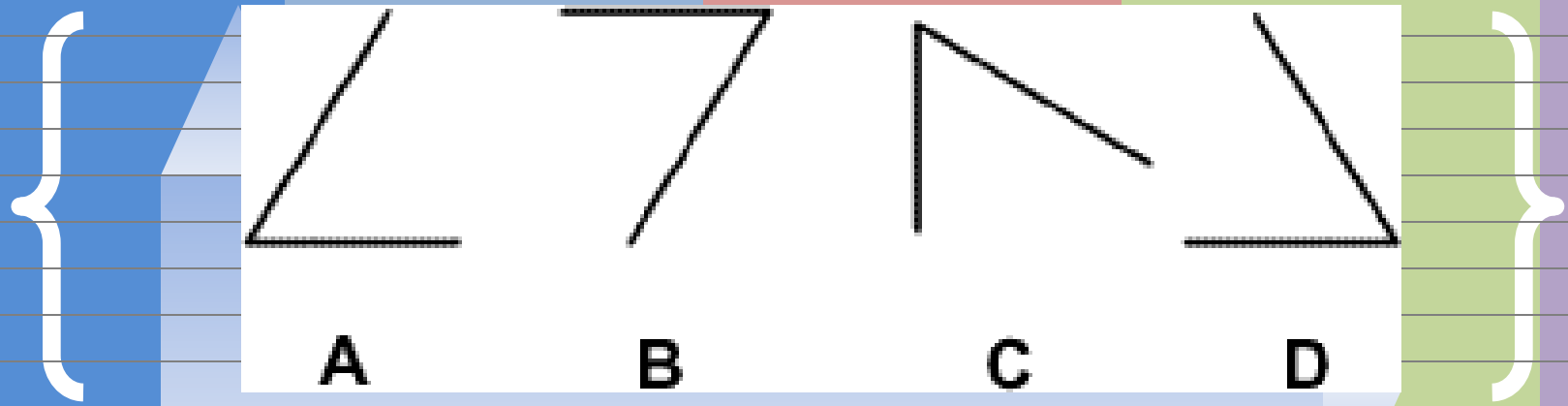
$$(((100 + 15) - (3 * 5)) / 10) - (10 + (5 - (3 + (2 * 1) - 2)))$$

3) Write every third word in this passage

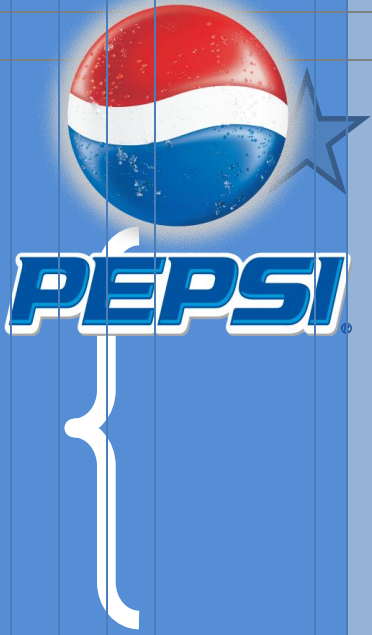


***Amidst the mists and fiercest frosts
With barest wrists and stoutest boasts
He thrusts his fists against the posts
And still insists he sees the ghost.***

4) Which figure is the odd one out?



5) How many four sided shapes does this diagram have?

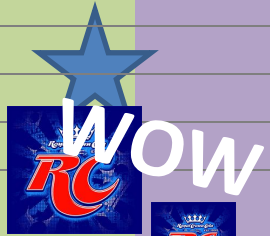
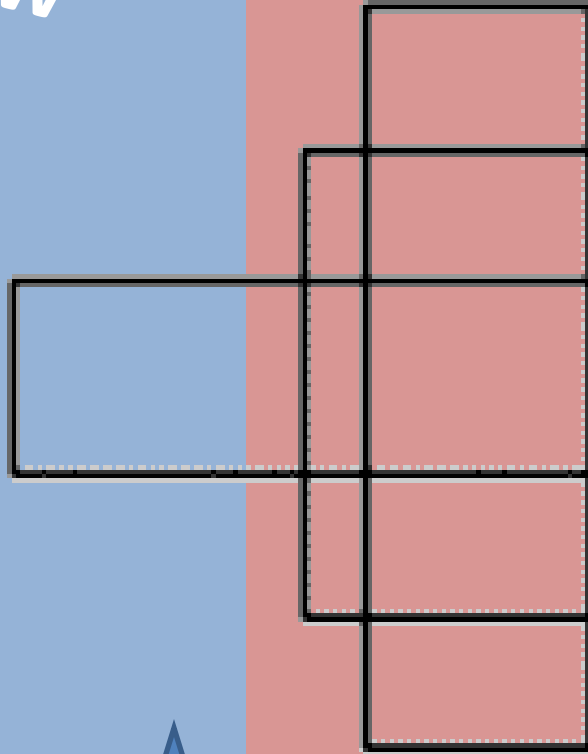


WOW

WOW



WOW



WOW



Great. Pencils down.

Hand your answer sheet to a peer for grading.

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ANSWERS

1) S

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ANSWERS

- 1) S
- 2) -2

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ANSWERS

- 1) S
- 2) -2
- 3) Mists frosts wrists boasts his the still sees

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ANSWERS

- 1) S
- 2) -2
- 3) Mists frosts wrists boasts his the still sees
- 4) D

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ANSWERS

- 1) S
- 2) -2
- 3) Mists frosts wrists boasts his the still sees
- 4) D
- 5) 29

“What.”
- you right now

“What.”

- you right now

Chartjunk

Visual elements of charts, graphs, and visualizations that add unnecessary complexity to the image, **distracting** the viewer via clutter, obfuscation, or some other means.

“What.”

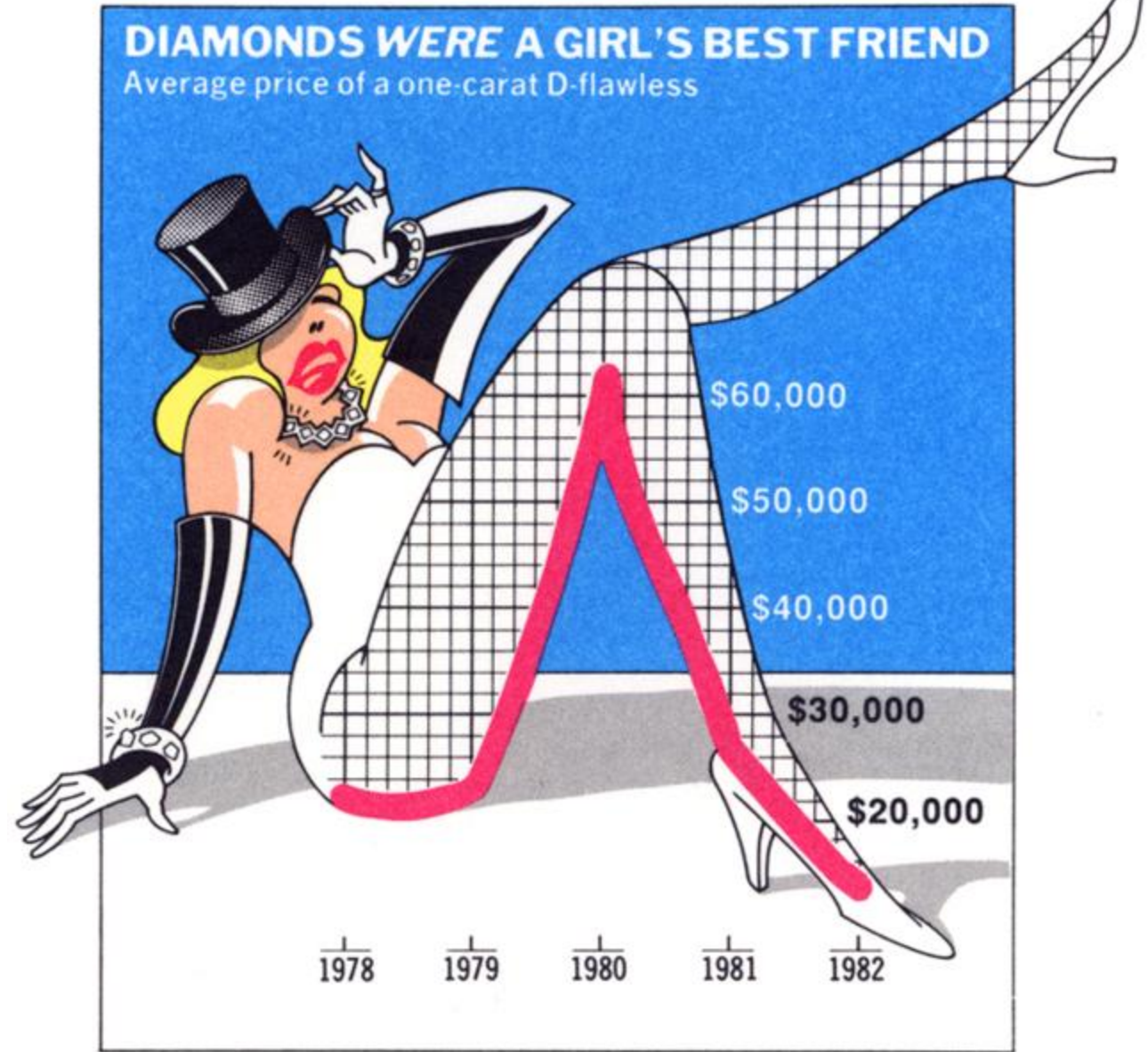
- you right now

Chartjunk

Visual elements of charts, graphs, and visualizations that add unnecessary complexity to the image, **distracting** the viewer via clutter, obfuscation, or some other means.

“What.”

- totally you right now

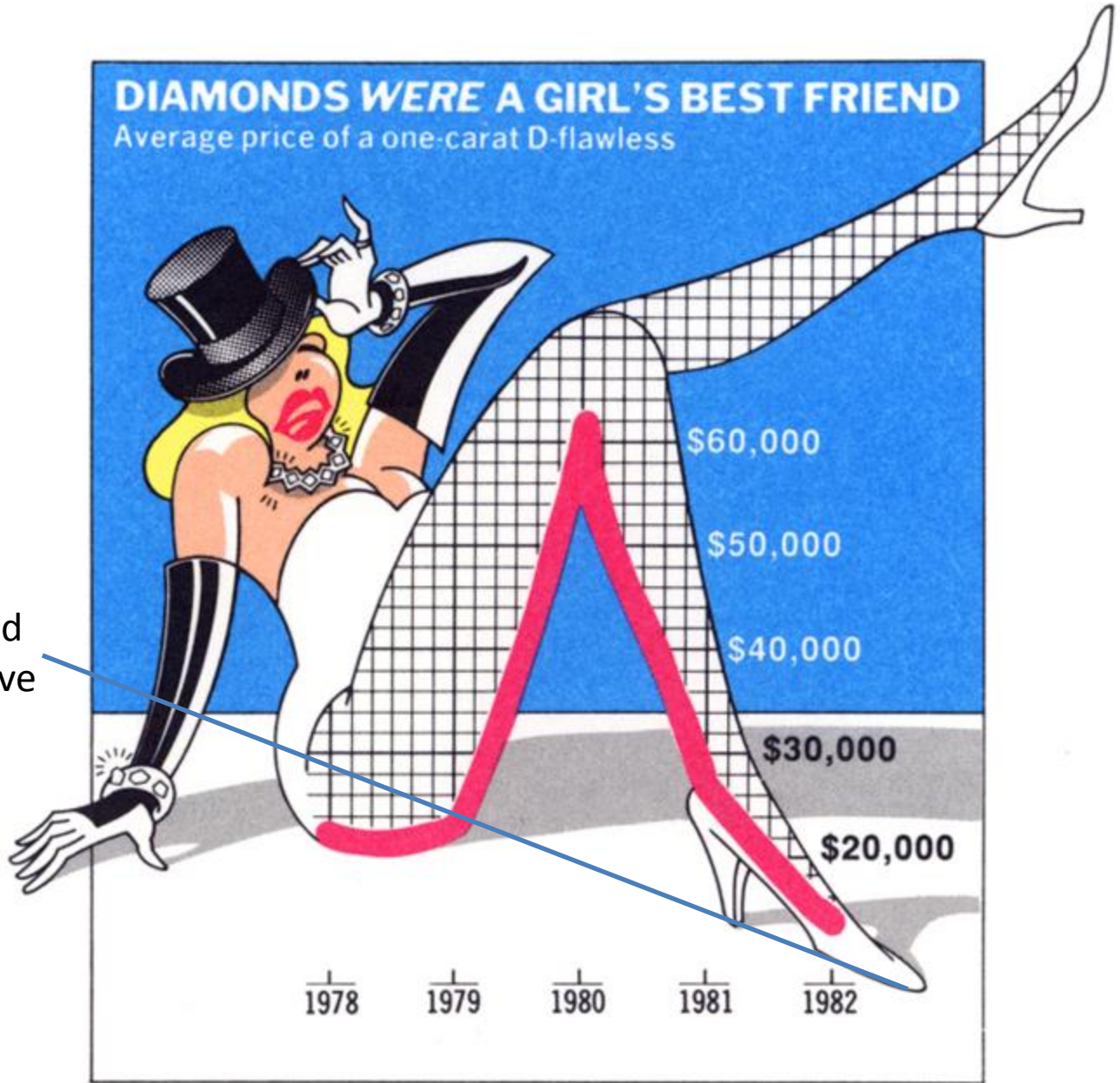


Designer's Guide to Creating Charts & Diagrams
Nigel Holmes, 1991

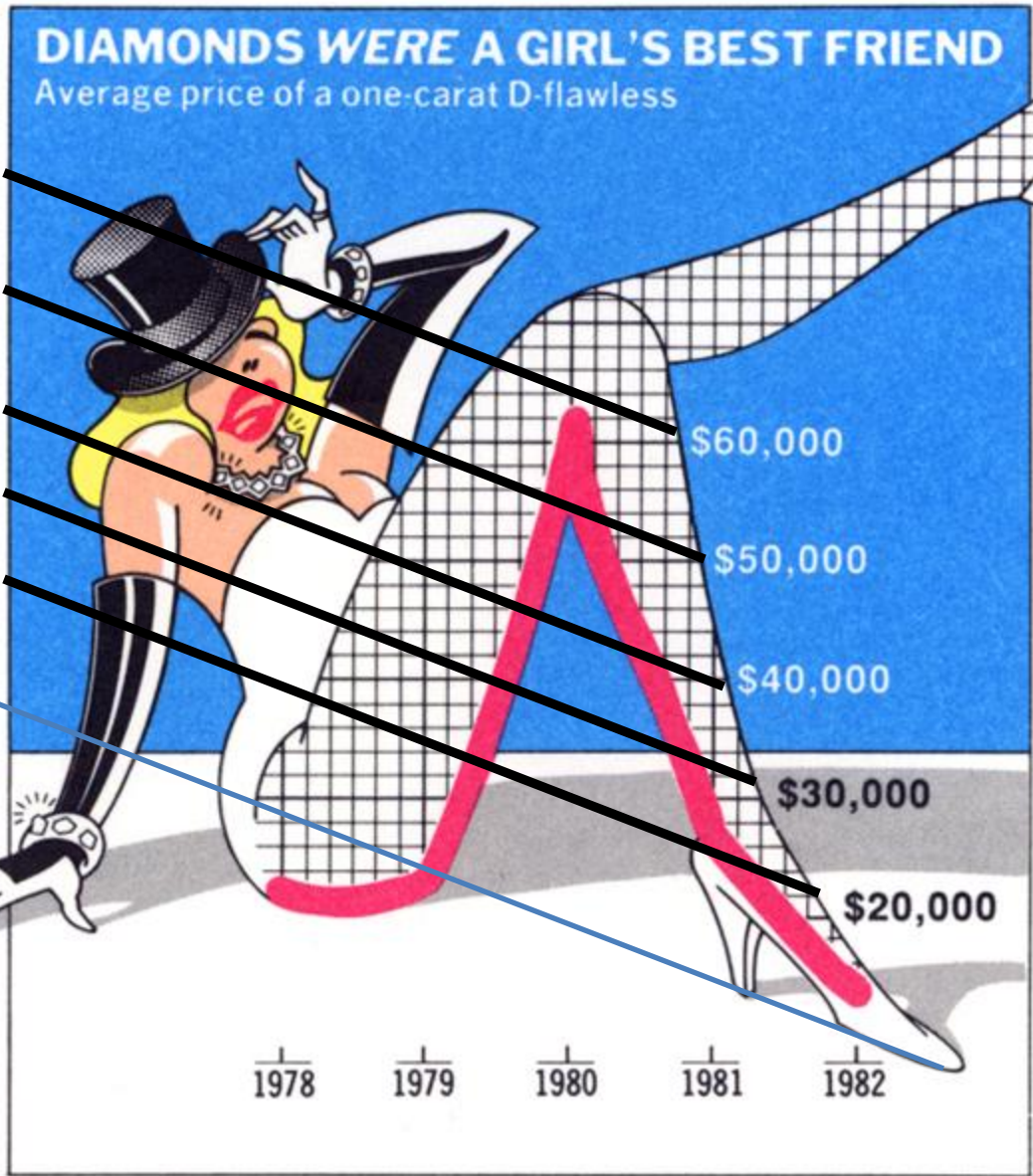
DIAMONDS WERE A GIRL'S BEST FRIEND

Average price of a one-carat D-flawless

Estimated perspective



Designer's Guide to Creating Charts & Diagrams
Nigel Holmes, 1991



BLACK: Data in perspective

Estimated perspective

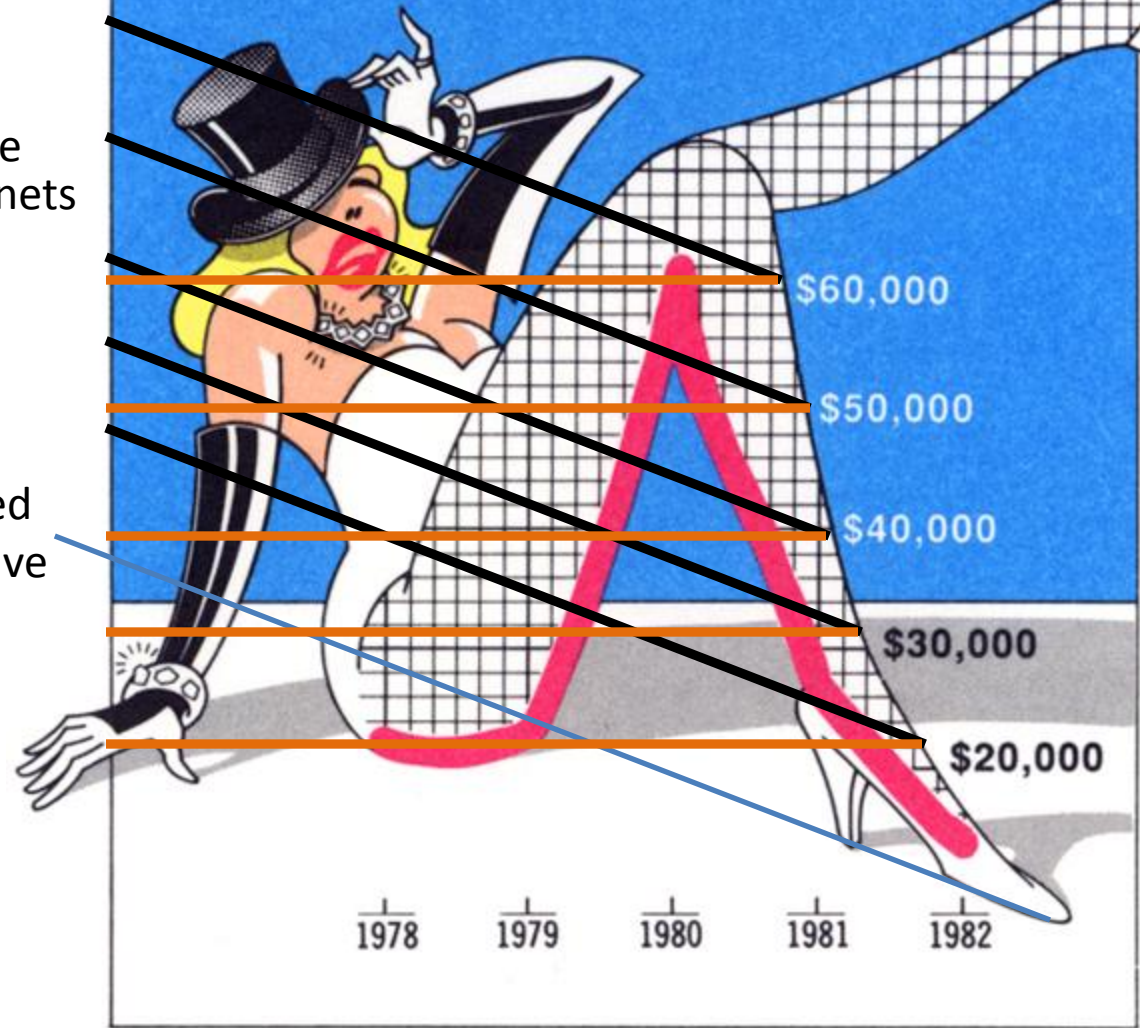
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DIAMONDS WERE A GIRL'S BEST FRIEND

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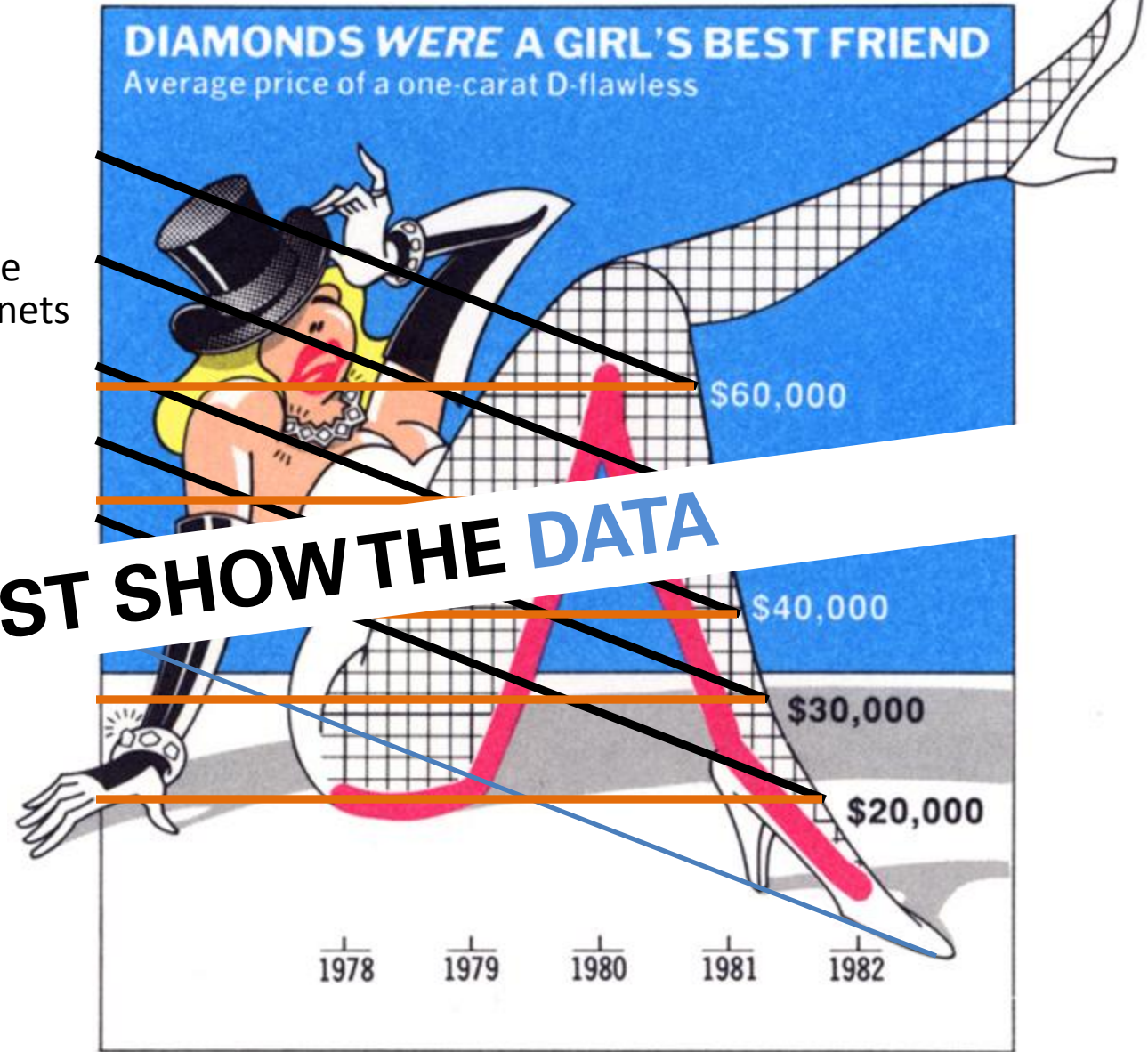
BLACK: Data in perspective
ORANGE: Data matches fishnets

Estimated perspective



Designer's Guide to Creating Charts & Diagrams
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BLACK: Data in perspective
ORANGE: Data matches fishnets



Designer's Guide to Creating Charts & Diagrams
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MONSTROUS COSTS

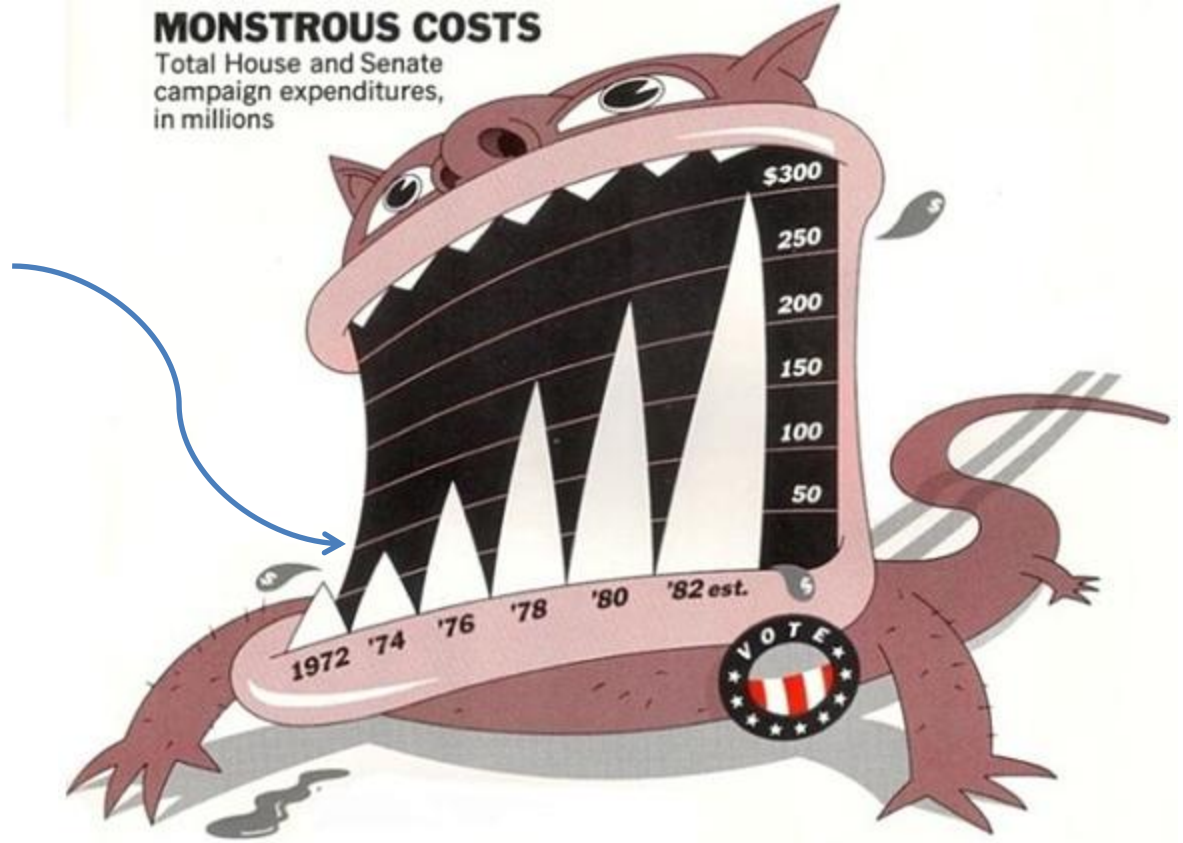
Total House and Senate
campaign expenditures,
in millions



MONSTROUS COSTS

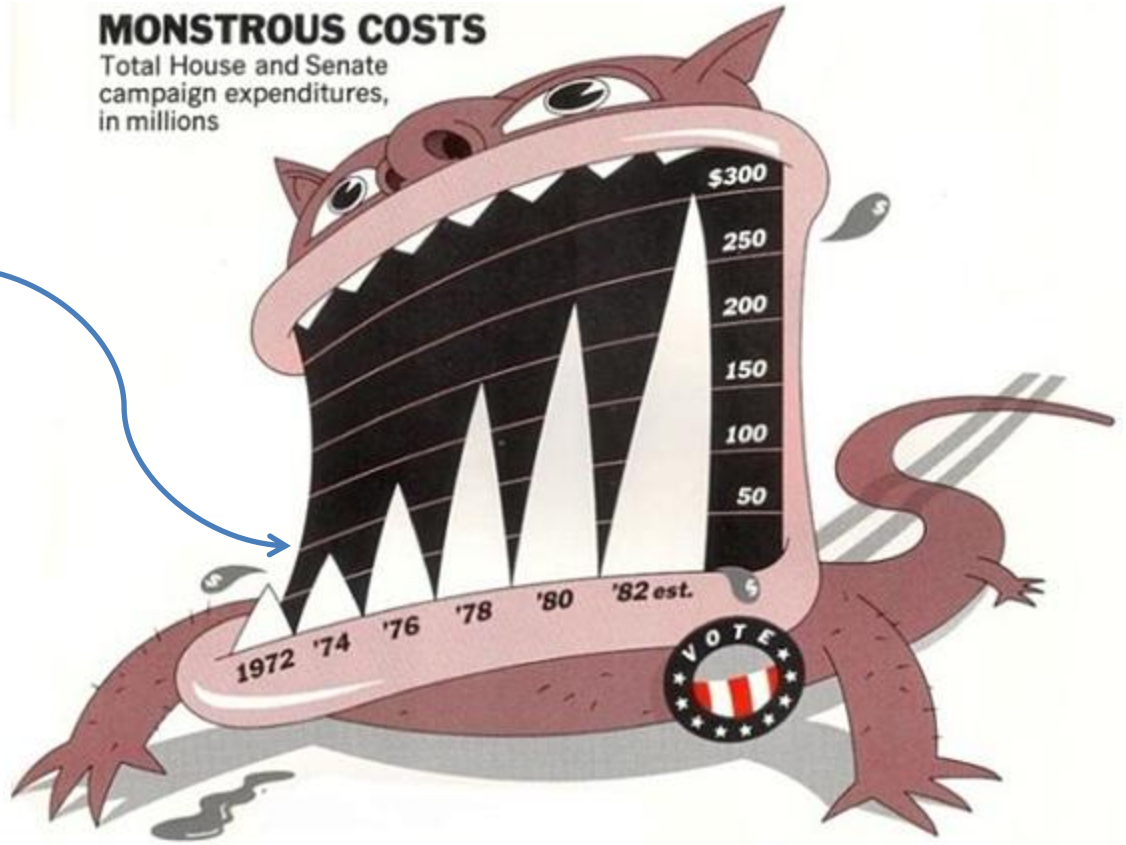
Total House and Senate
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Hooray for markings!

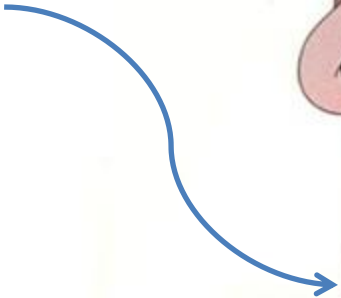


MONSTROUS COSTS

Total House and Senate
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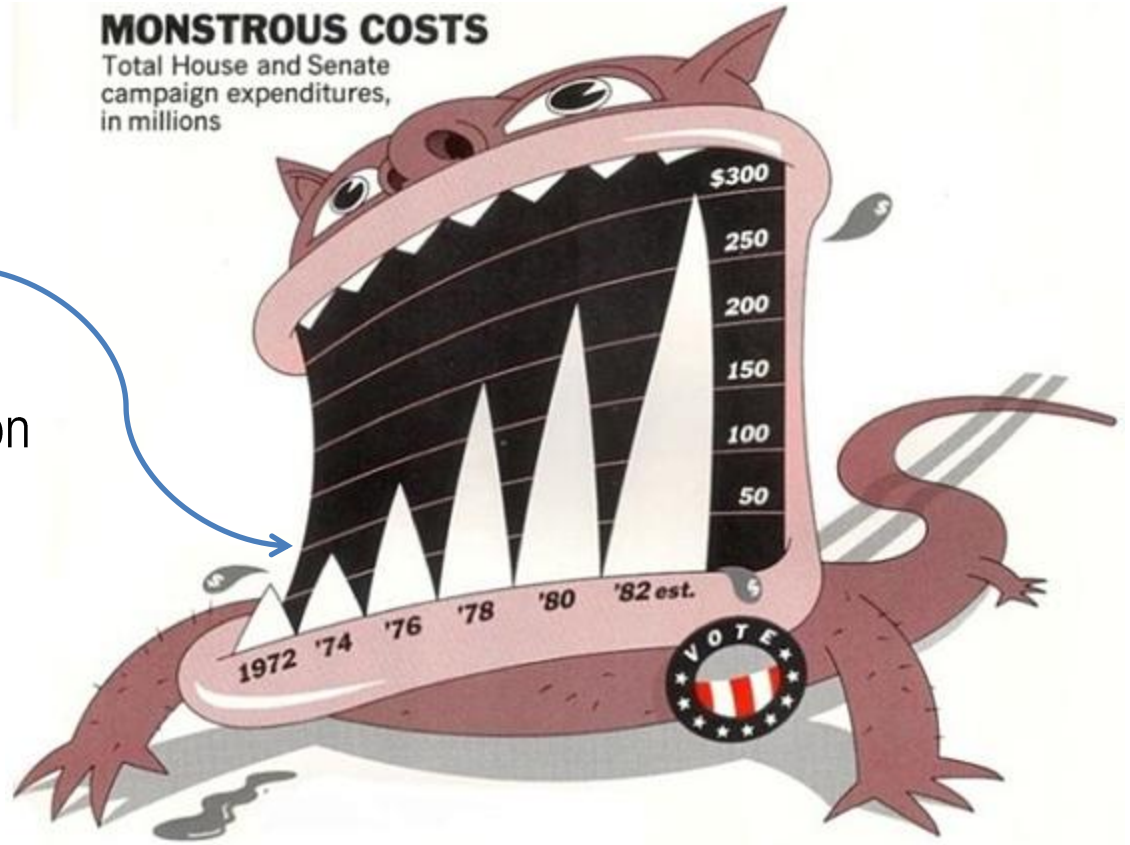


Hooray for markings!
Boo, distractions.



MONSTROUS COSTS

Total House and Senate
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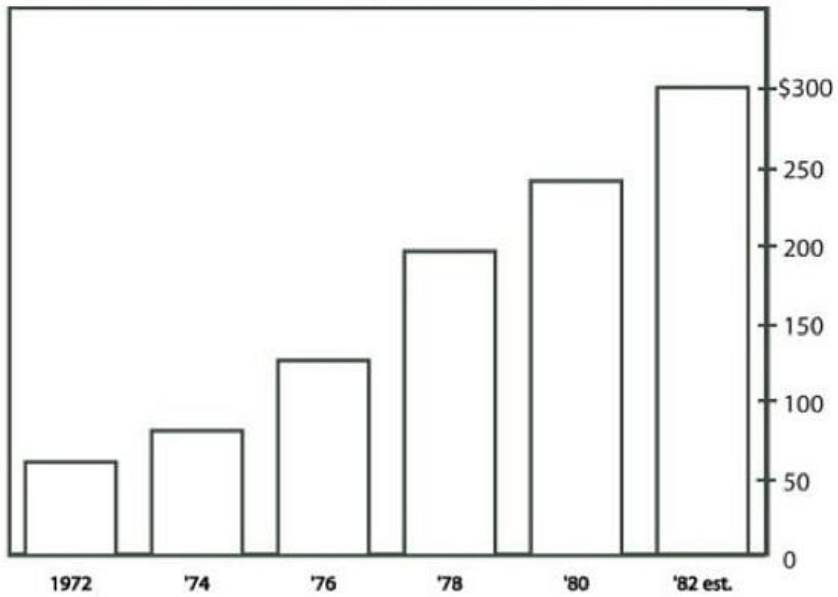


Hooray for markings!

Boo, distractions.

Boo, including author opinion
in a journalistic chart.

MONSTROUS COSTS
Total House and Senate campaign expenditures, in millions



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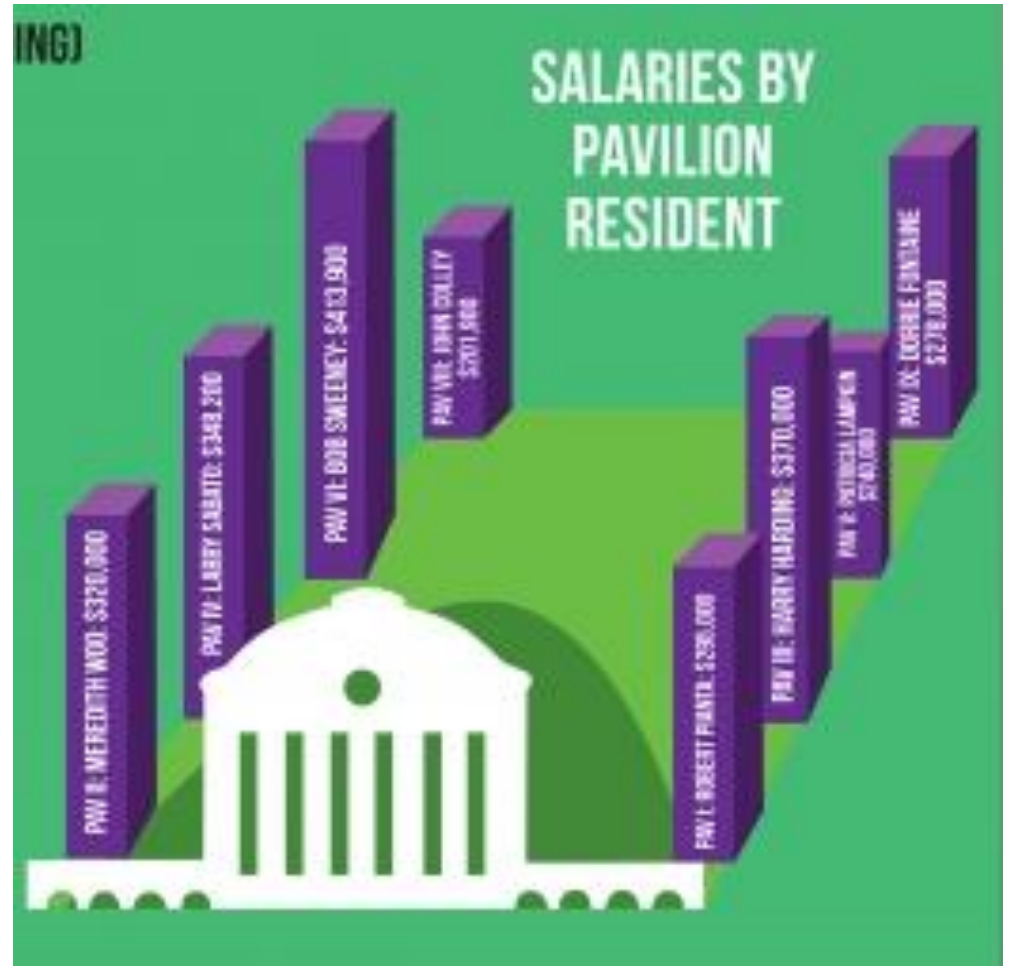
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JUST SHOW THE DATA



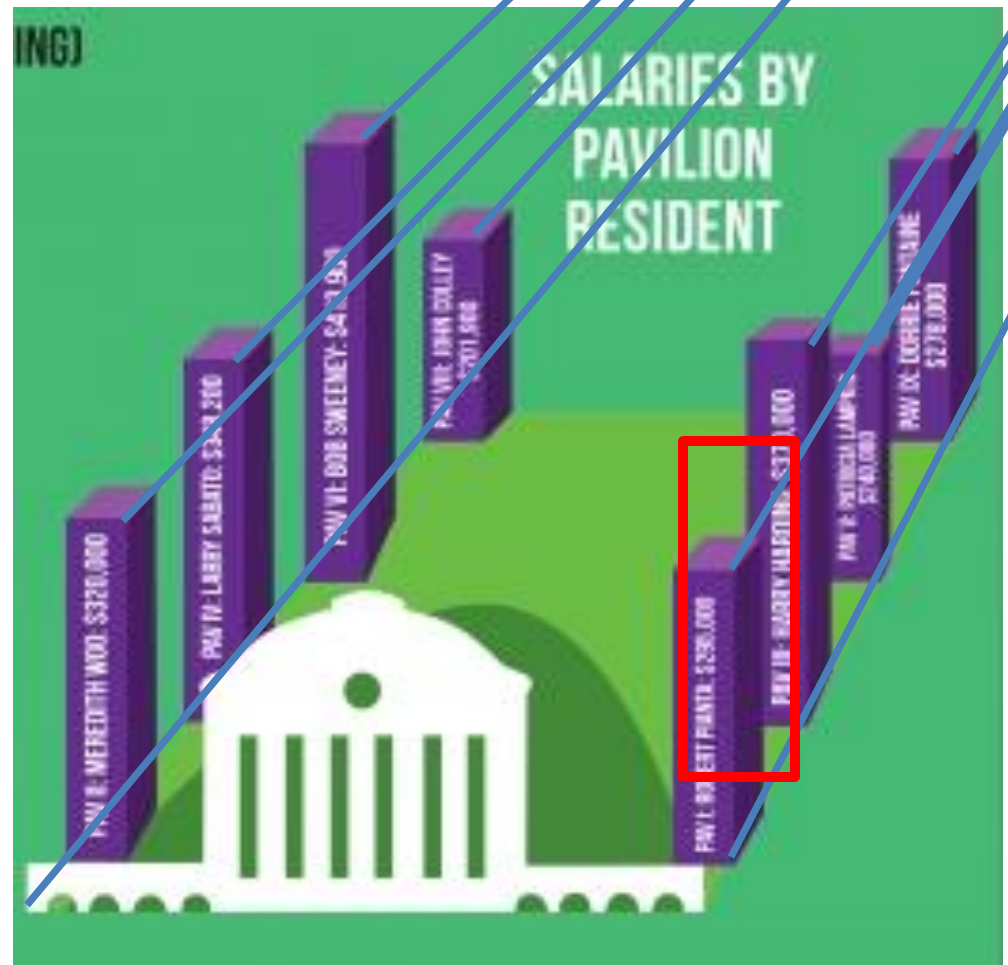
Cav Daily, 2013

One point perspective? Oh no.



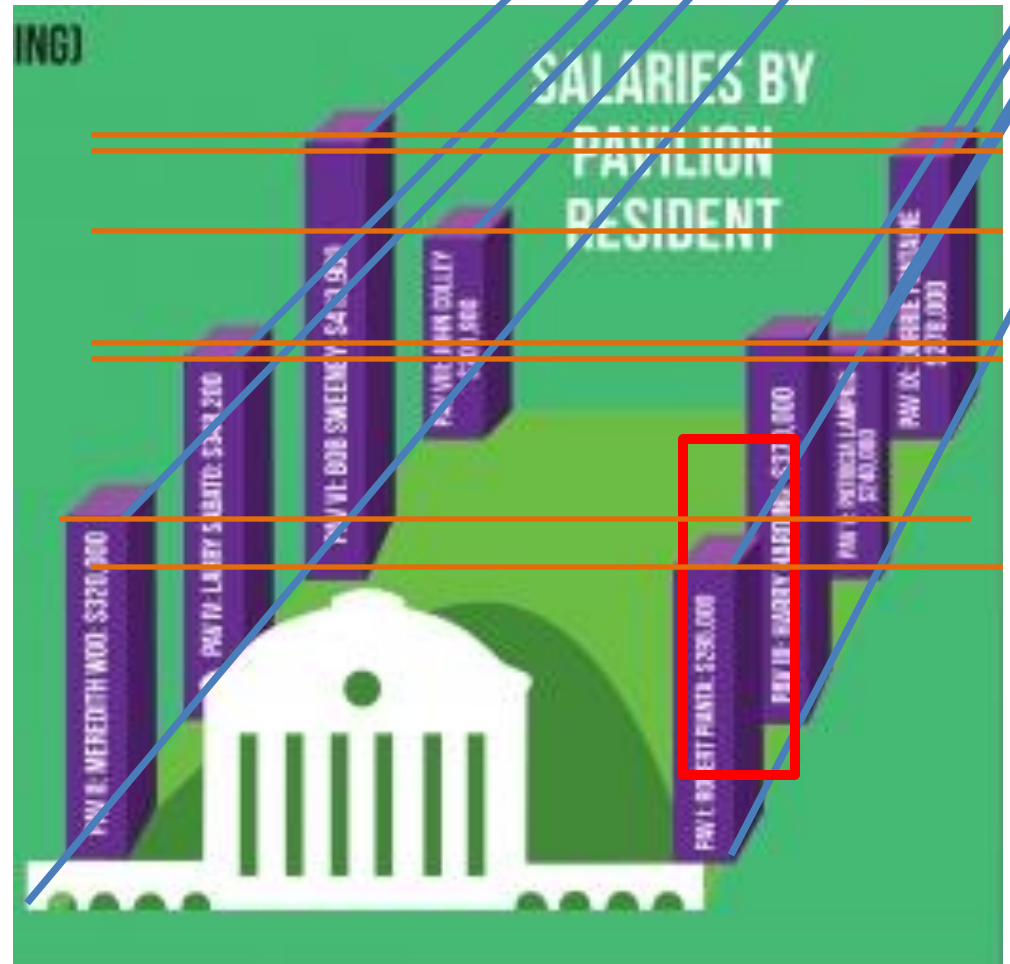
Cav Daily, 2013

One point perspective? Oh no.
Overlap begins to obscure even further.



Cav Daily, 2013

One point perspective? Oh no.
Overlap begins to obscure even further.
No means of comparison.



Cav Daily, 2013

One point perspective? Oh no.
Overlap begins to obscure even further.
No means of comparison.



CHART. JUNK.



Cav Daily, 2013

Graphical Excellence

“Complex ideas communicated with clarity, precision, and efficiency.”

- Show the data
- Induce the viewer to think of substance, not methodology
- Avoid distorting the data
- Present many numbers in a small place
- Make large data sets coherent
- Encourage the eye to compare data
- Reveal the data at multiple levels of detail
- Serve a reasonably clear purpose

Graphical Excellence

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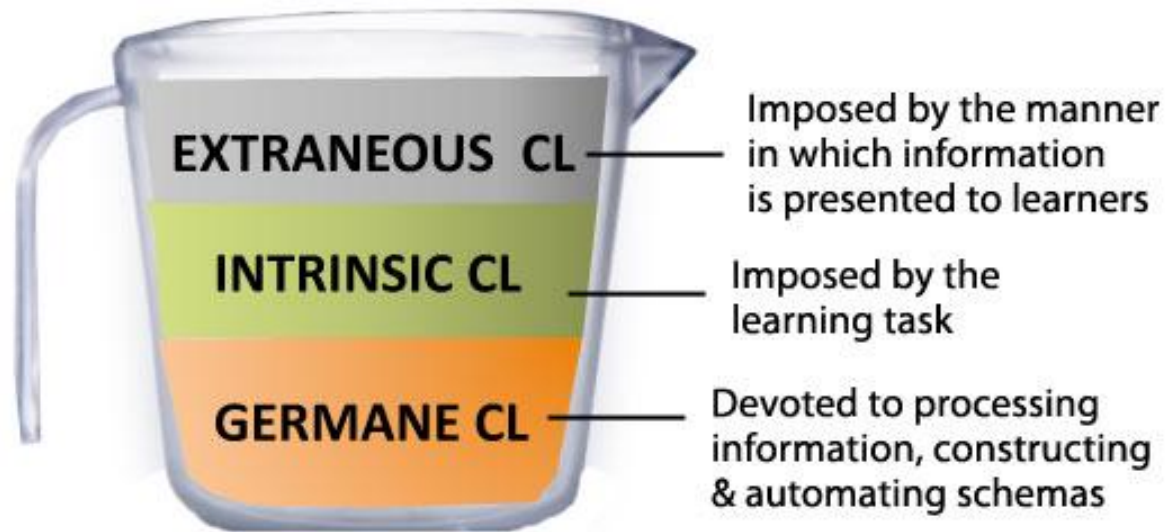
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Cognitive Load

The work or “load” associated with perceiving, interpreting, problem solving, and all other tasks associated with the use and control of [working memory](#).

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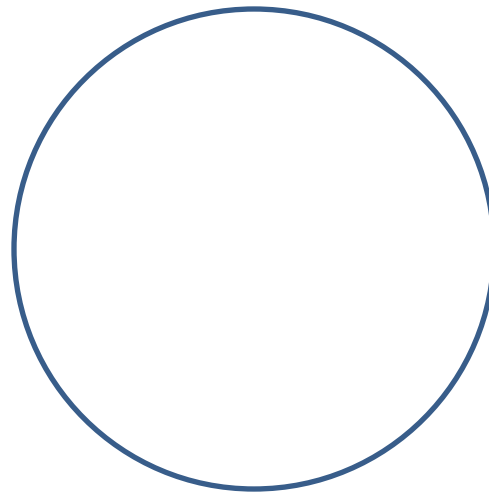
“For all nonequal points along the edge of an object the distance between the midpoint of the line segment created by these two points and the edge of the source object is always greater than 0.”

“For all nonequal points along the edge of an object the distance between the midpoint of the line segment created by these two points and the edge of the source object is always greater than 0.”

“The object has no linear edges.”

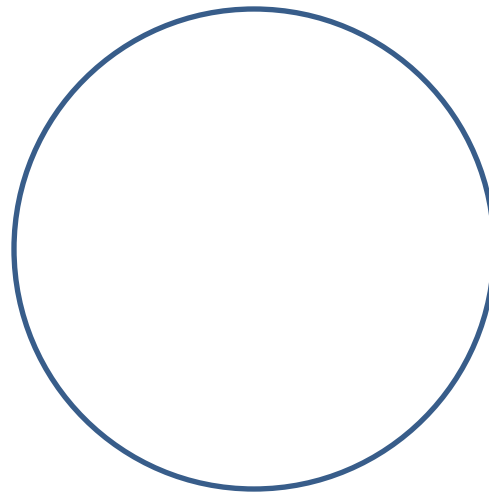
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“This object has no linear edges.”



The way you present an idea adds **extraneous** cognitive load.

$$(((100 + 15) - (3 * 5)) / 10) - (10 + (5 - (3 + (2 * 1) - 2)))$$

$$\begin{aligned} &(((100 + 15) - (3 * 5)) / 10) - (10 + (5 - (3 + (2 * 1) - 2))) \\ &((115 - 15) / 10) - (10 + (5 - (3 + 2 - 2))) \end{aligned}$$

$$(((100 + 15) - (3 * 5)) / 10) - (10 + (5 - (3 + (2 * 1) - 2)))$$

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$$(100 / 10) - (10 + (5 - 3))$$

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$$(100 / 10) - (10 + 2)$$

$$(((100 + 15) - (3 * 5)) / 10) - (10 + (5 - (3 + (2 * 1) - 2)))$$

$$((115 - 15) / 10) - (10 + (5 - (3 + 2 - 2)))$$

$$(100 / 10) - (10 + (5 - 3))$$

$$(100 / 10) - (10 + 2)$$

$$10 - 12$$

$$(((100 + 15) - (3 * 5)) / 10) - (10 + (5 - (3 + (2 * 1) - 2)))$$

$$((115 - 15) / 10) - (10 + (5 - (3 + 2 - 2)))$$

$$(100 / 10) - (10 + (5 - 3))$$

$$(100 / 10) - (10 + 2)$$

$$10 - 12$$

While there is some intrinsic cognitive load in everything your **design choices** determine how much extra is on top of that.

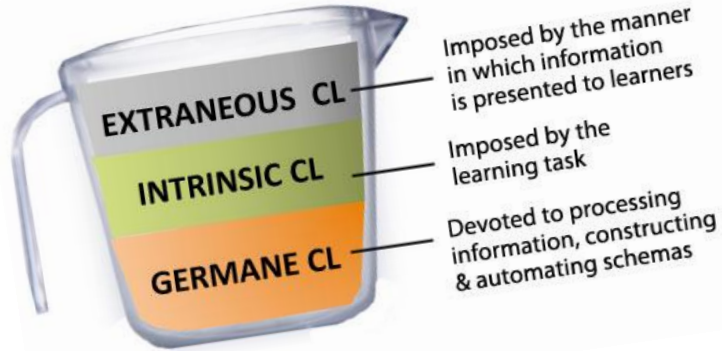


Imposed by the manner
in which information
is presented to learners

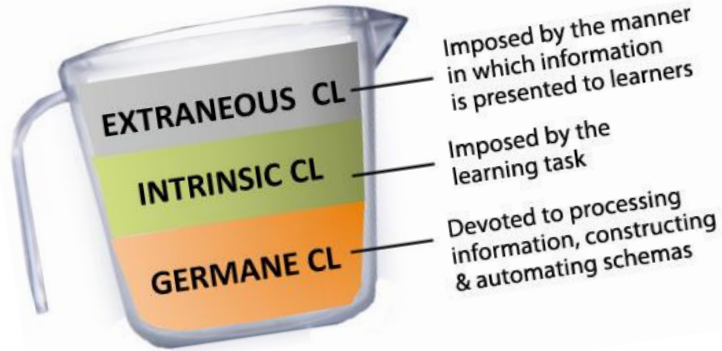
Imposed by the
learning task

Devoted to processing
information, constructing
& automating schemas

The way you present an idea adds **extraneous** cognitive load.

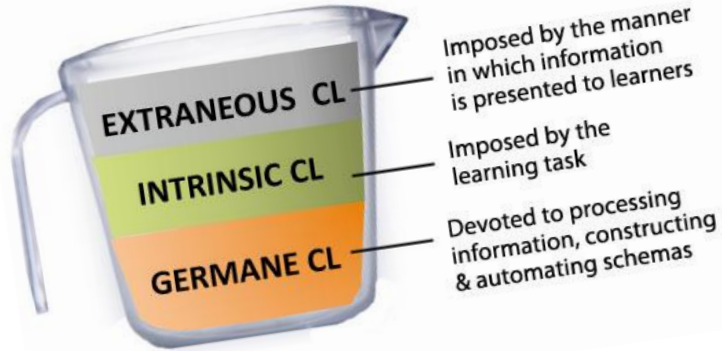


The way you present an idea adds **extraneous** cognitive load.



Germane Cognitive Load can be reduced by paying careful attention to how your viewer develops an understanding of your material.

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Schema / “Mental Model”

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8 2 6 1 0 5 4

7 1 2 9 4 8 7 0 9 6

1 4 3 2

8 2 6 1 0 5 4
7 1 2 9 4 8 7 0 9 6
1 4 3 2

7 ± 2

8 2 6 1 0 5 4
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7 ± 2

“The average number of objects the average human can hold in working memory”

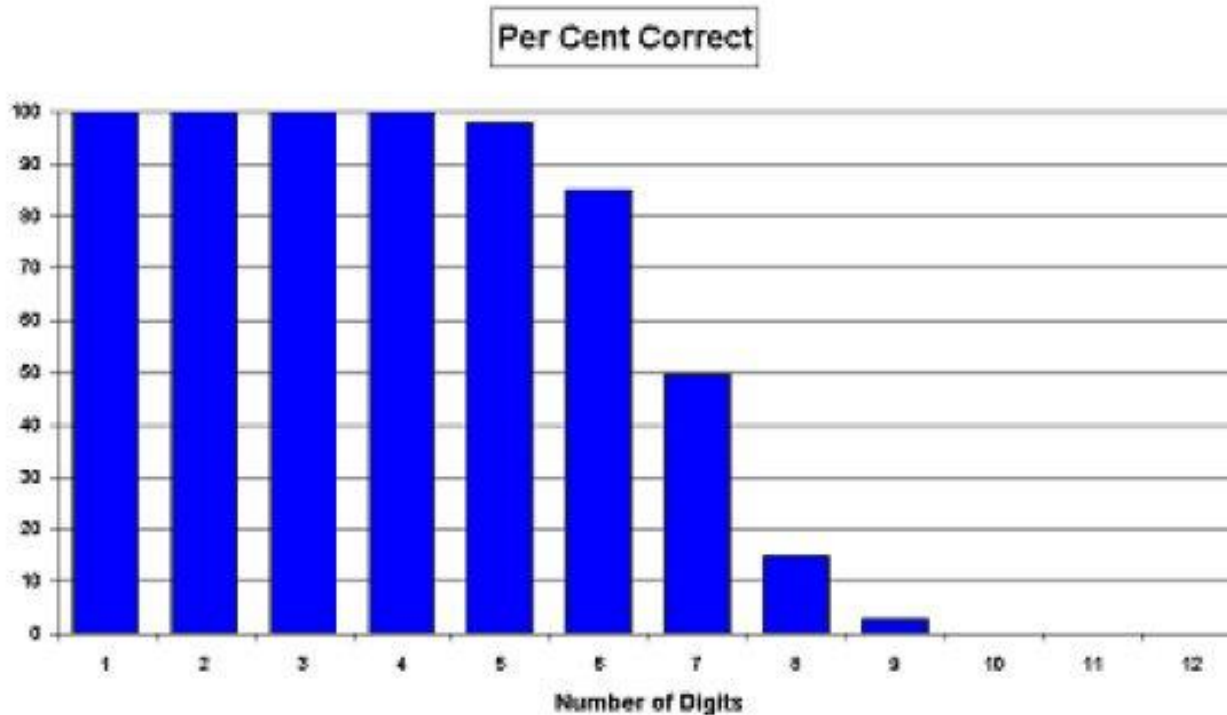
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7 ± 2

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The Magical Number Seven, Plus or Minus Two:
Some Limits on Our Capacity for Processing Information,
George A. Miller, 1956

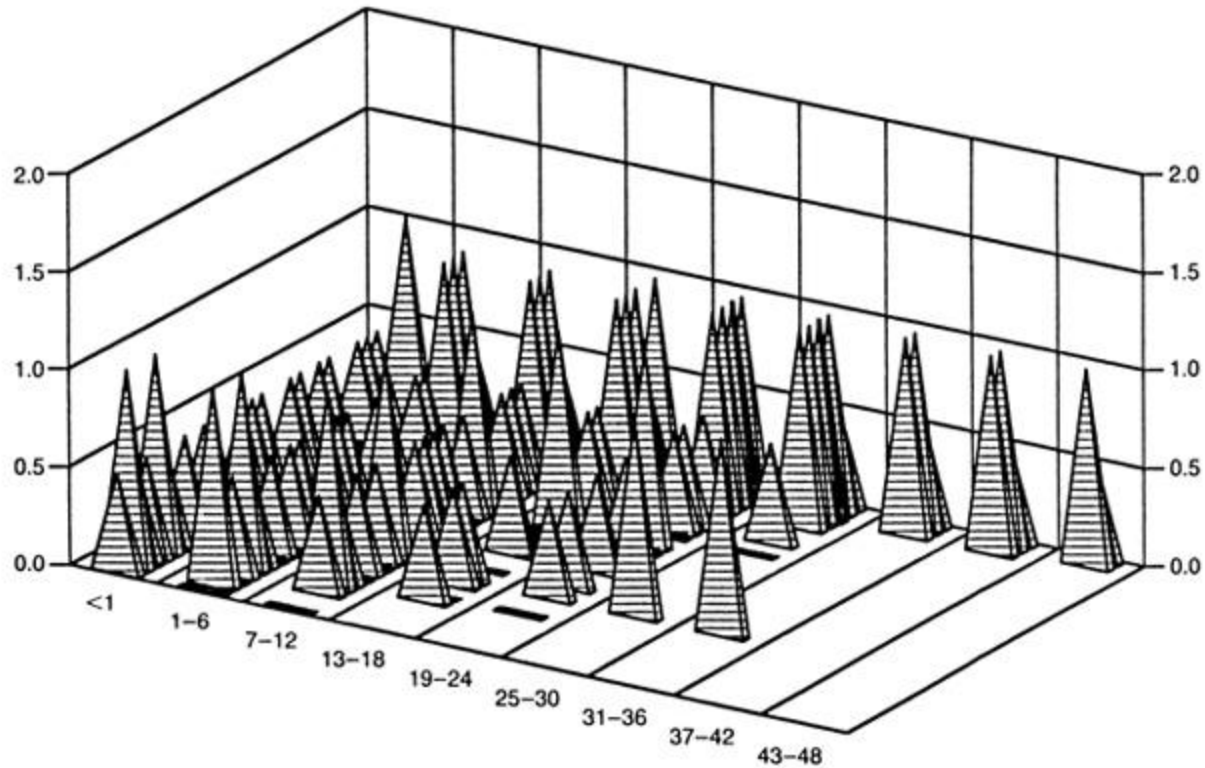
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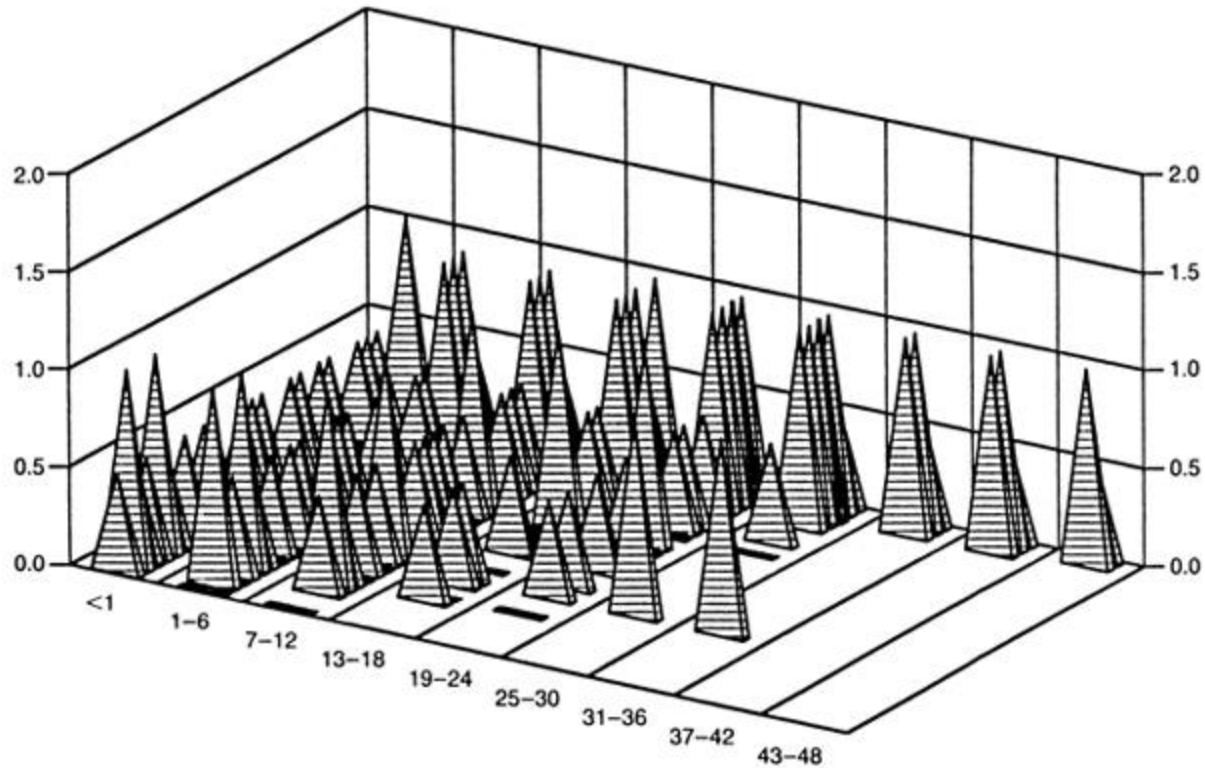
The Magical Number Seven, Plus or Minus Two:
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Awareness Test

<http://www.youtube.com/watch?v=Ahg6qcgoay4>



Chartjunk comes in many forms



Chartjunk comes in many forms
When in doubt ask “is it obvious?”

HOMework

(This is on Collab)

Consider the visualizations that you turned in for homework 1. Is there anything about these visualizations that strikes you as chartjunk? If so (or if not) explain your reasoning in a short response.