

Optimizing Your Data Visualizations

Who Are You?

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Agenda

- What is Data Visualization?
- Why Do We Care!!!
- How do we like to view data?
- 5 Guidelines
- Questions

What is Data Visualization?

- Turn to your neighbor and discuss:
 - YOUR definition of Data Visualization
 - What do you want to learn from this session

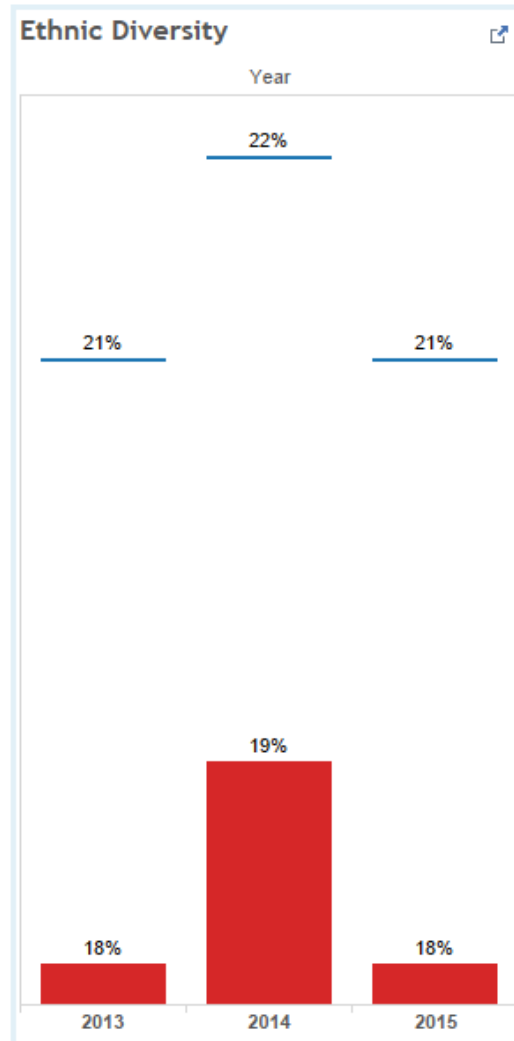
What is Data Visualization?

The visual analysis of and communication of data

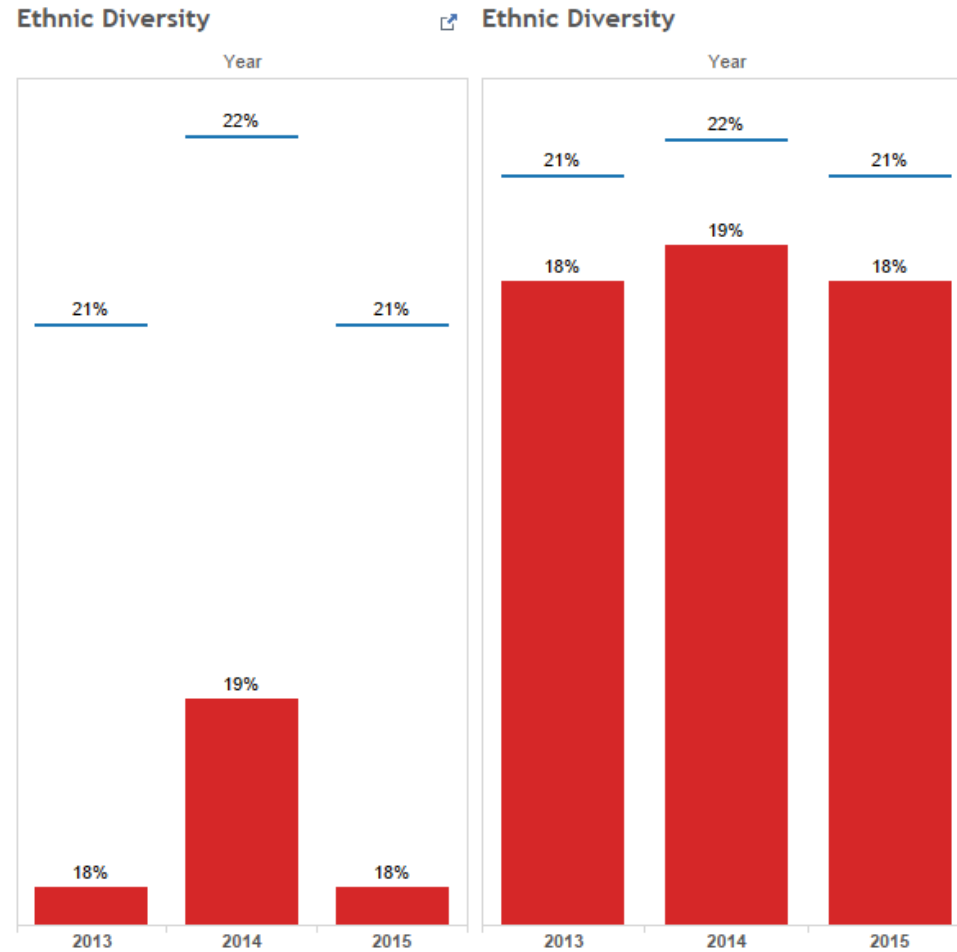
- Andy Kirk

<http://www.visualisingdata.com/>

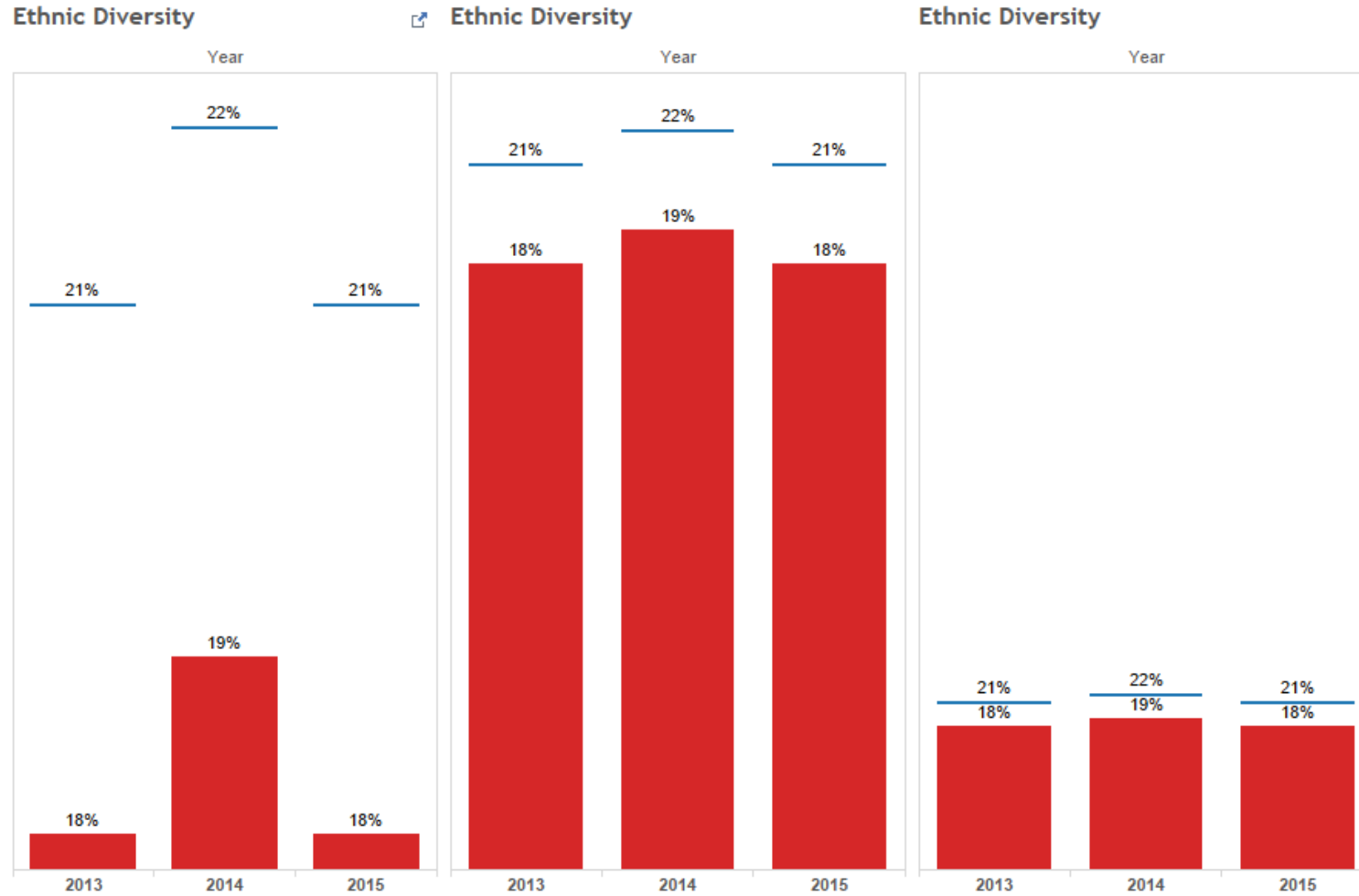
Why Do We Care!!!



Why Do We Care!!!



Why Do We Care!!!



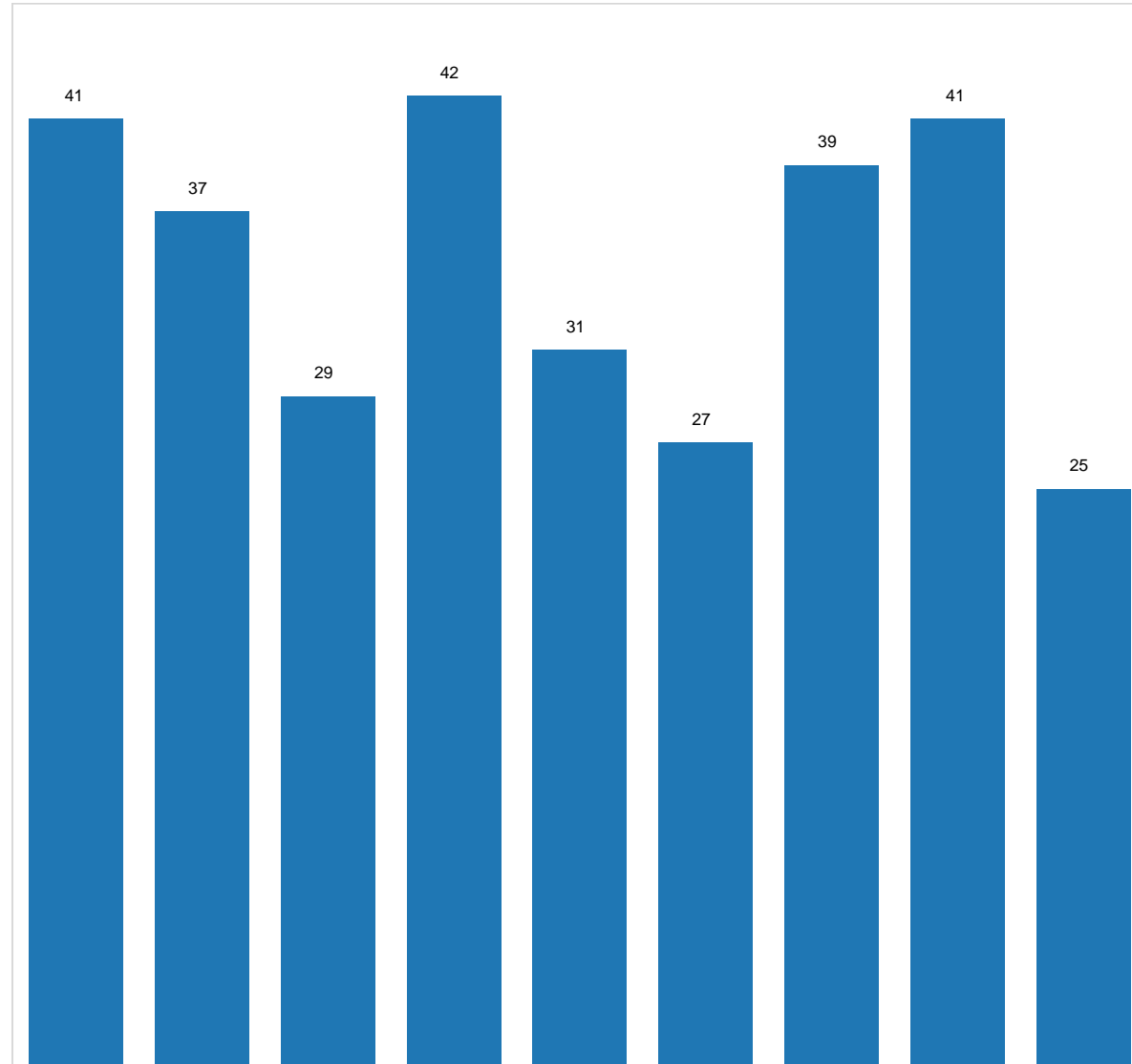
Count the Number of 7s

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

Answer

	41
	37
	29
	42
	31
	27
	39
	41
	25

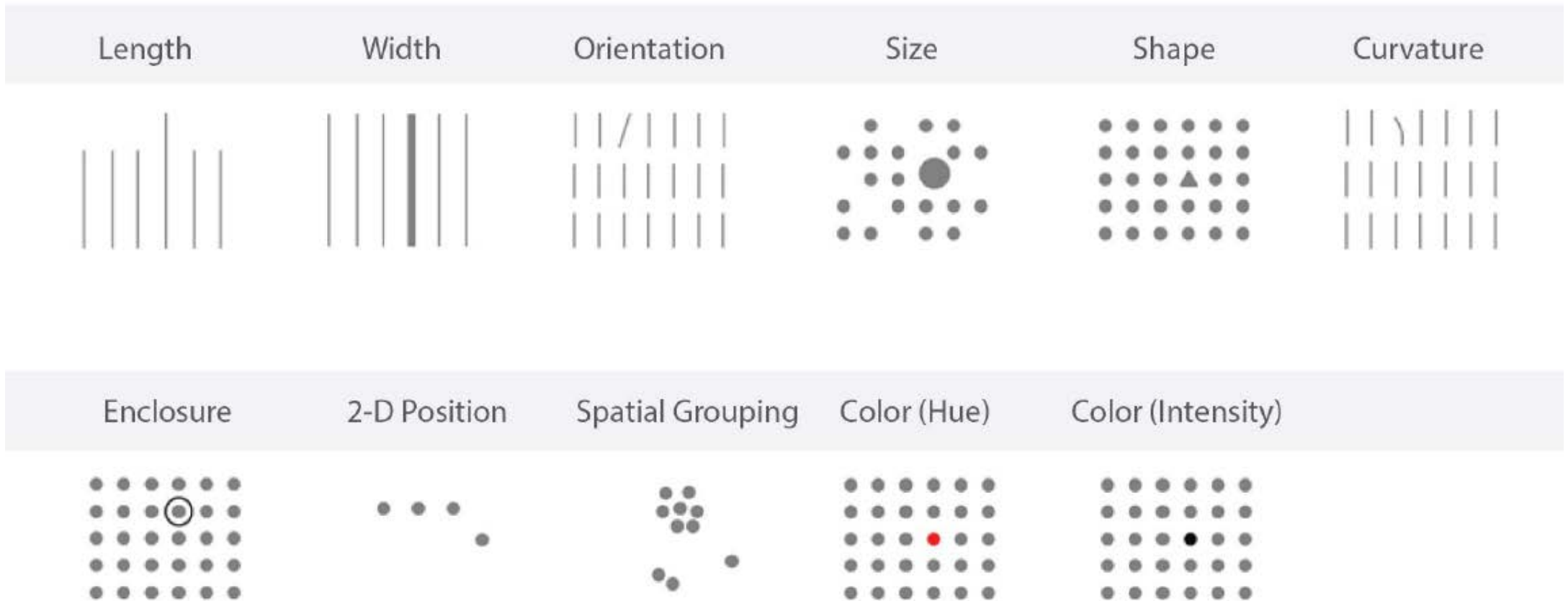
Which number is represented the most?



Seeing is faster than thinking



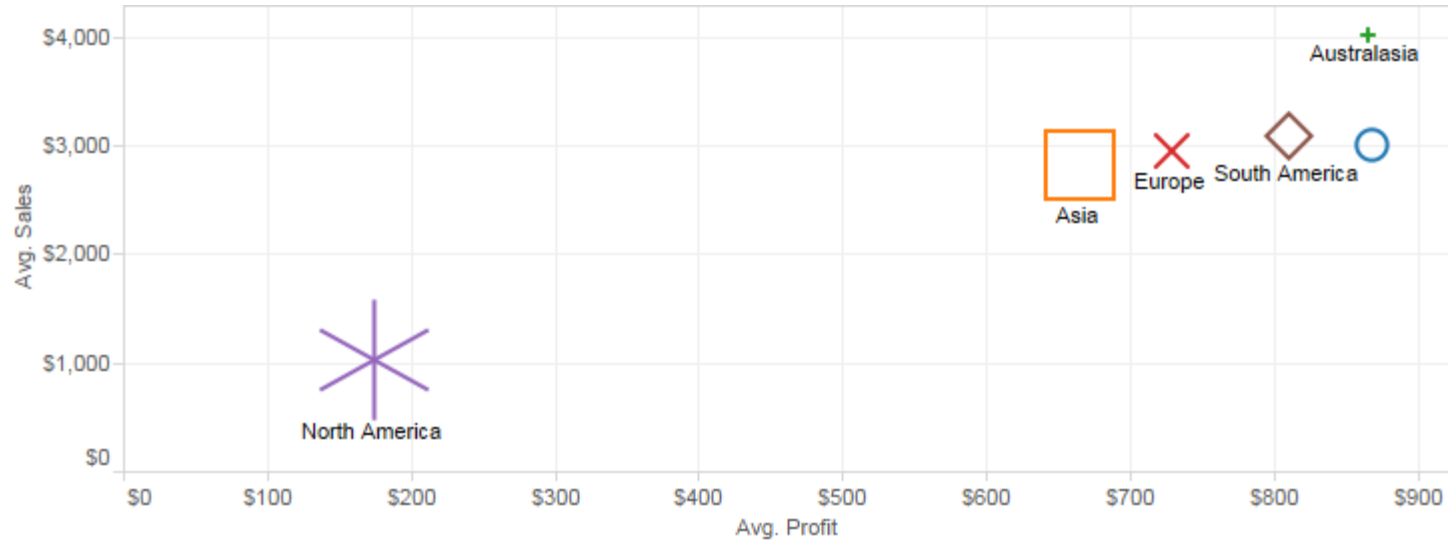
How do we like to view data?



How do we like to view data?

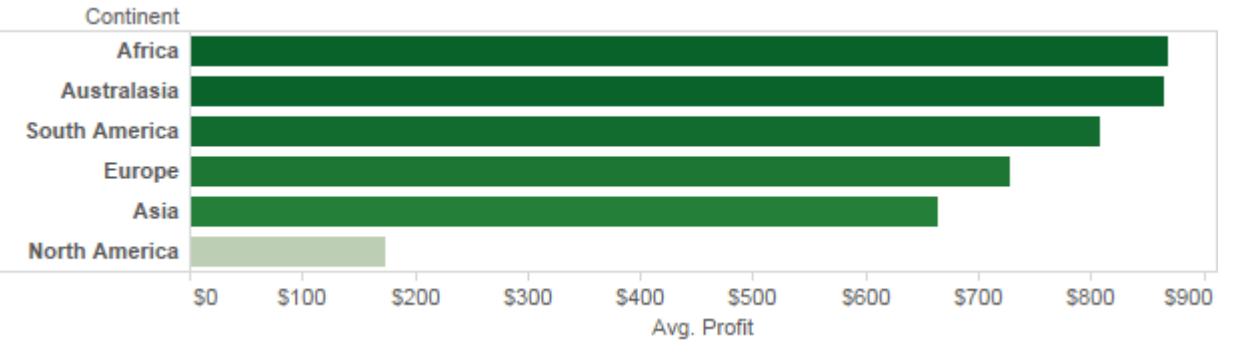
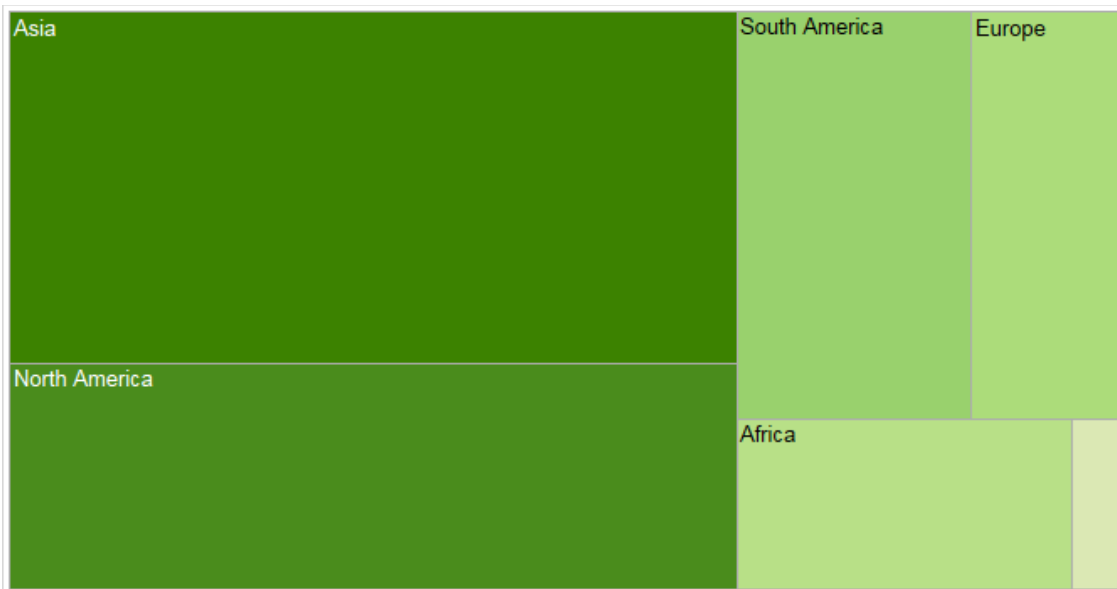
QUANTITATIVE	ORDINAL	CATEGORICAL
Position Length Size Color Intensity	Position Size Color Intensity Different Colors Shape	Position Shape Different Colors

Position



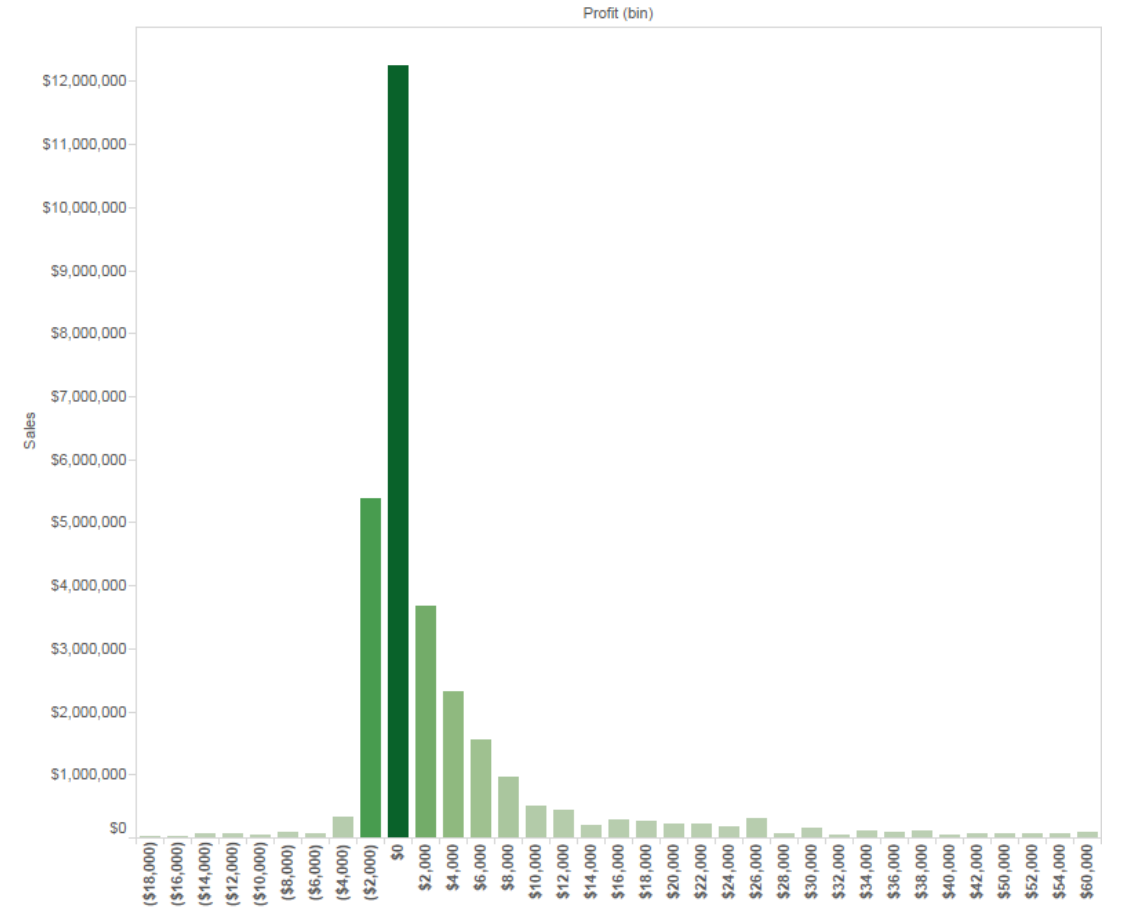
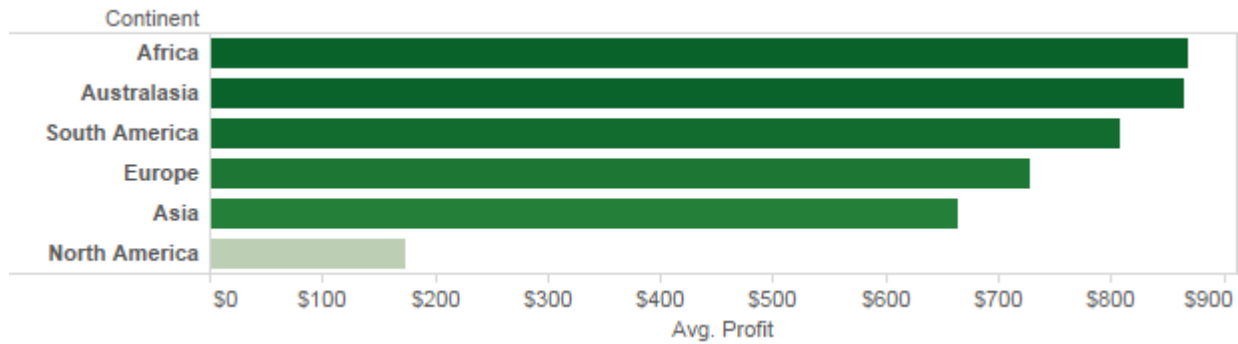
Scatter Plot

Bar Chart

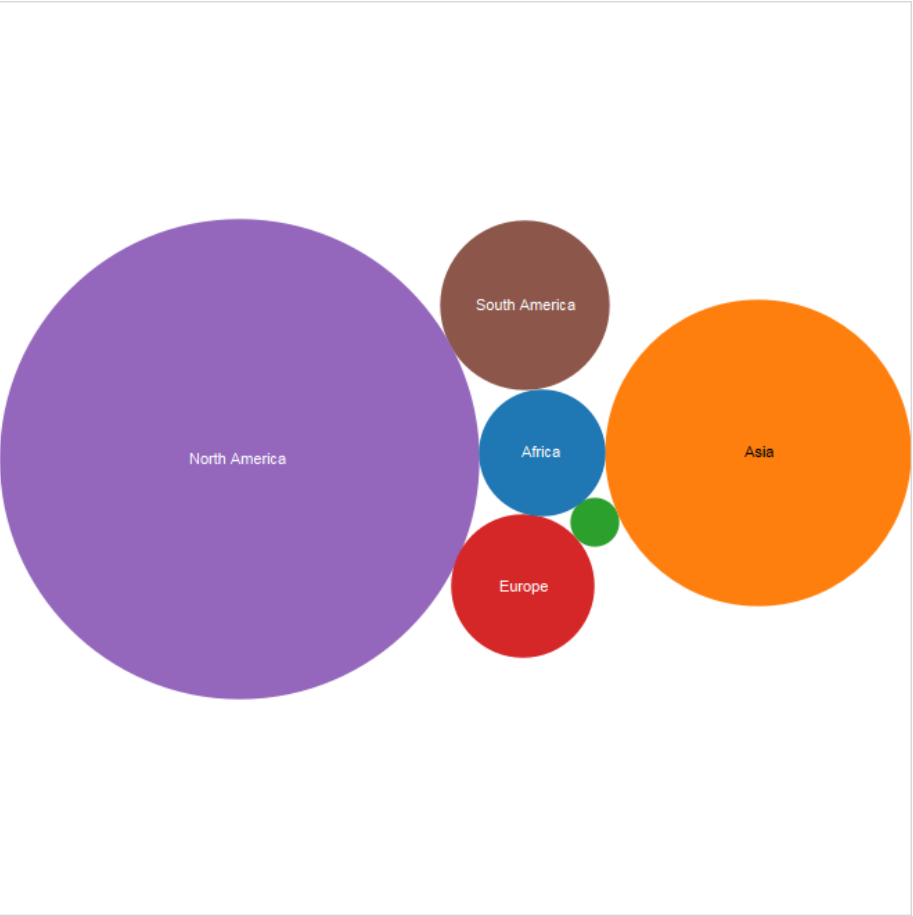


Tree Map

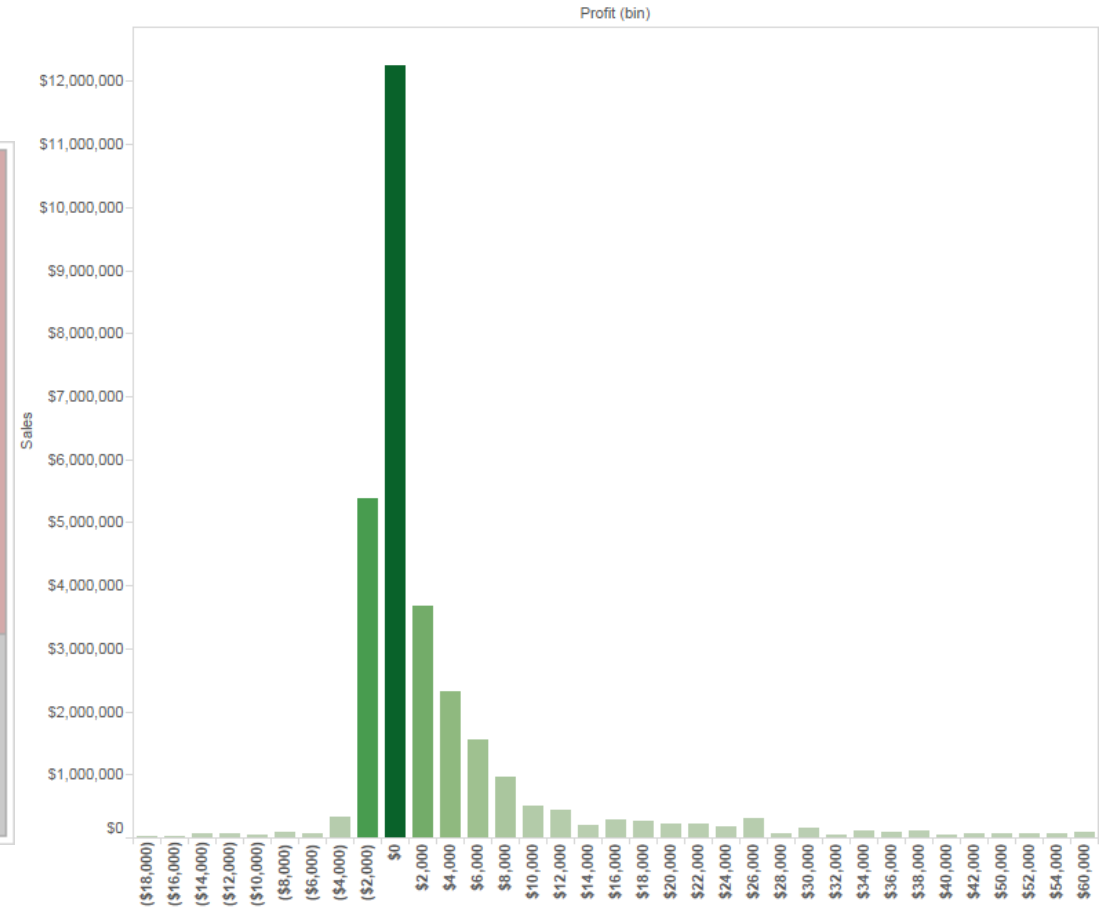
Length



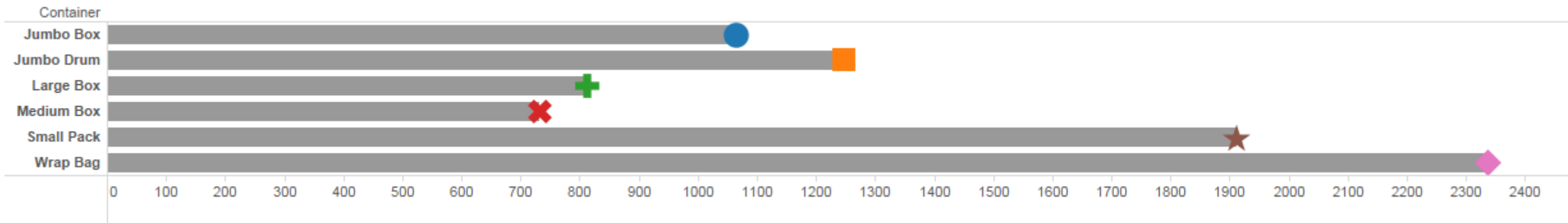
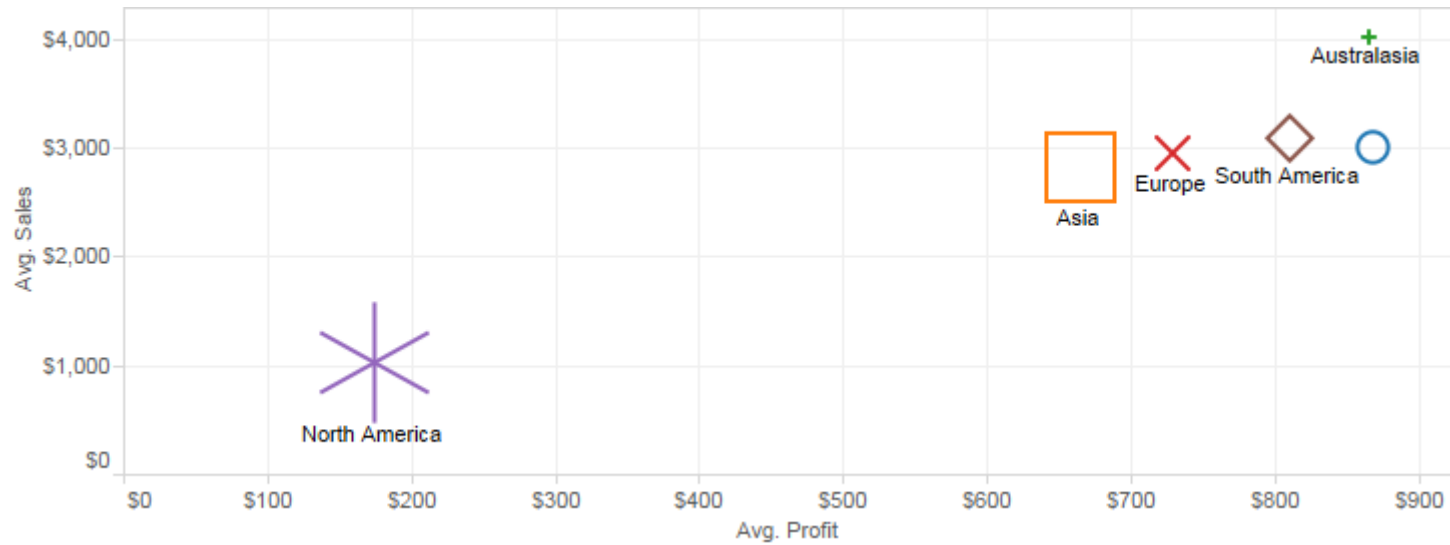
Size



Color Intensity



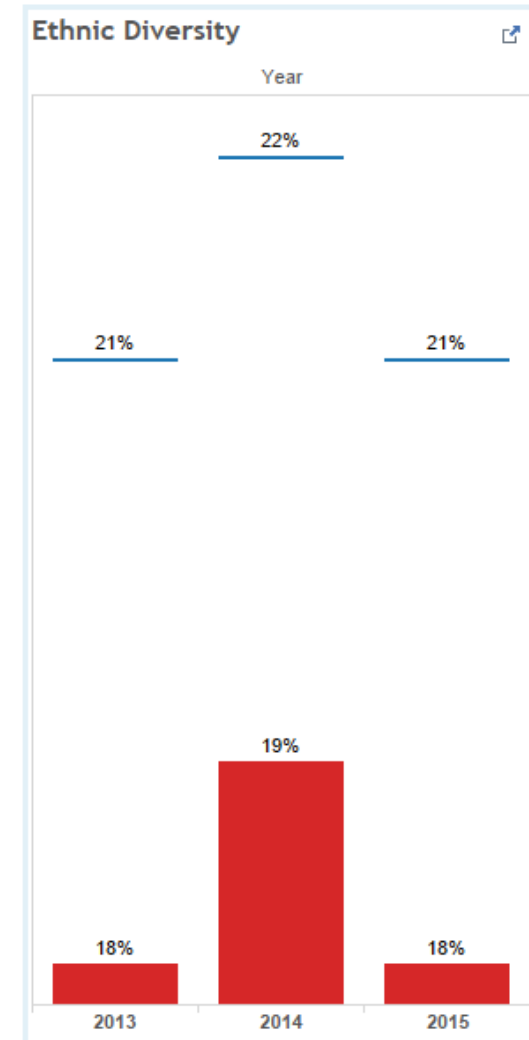
Shape/Different Color



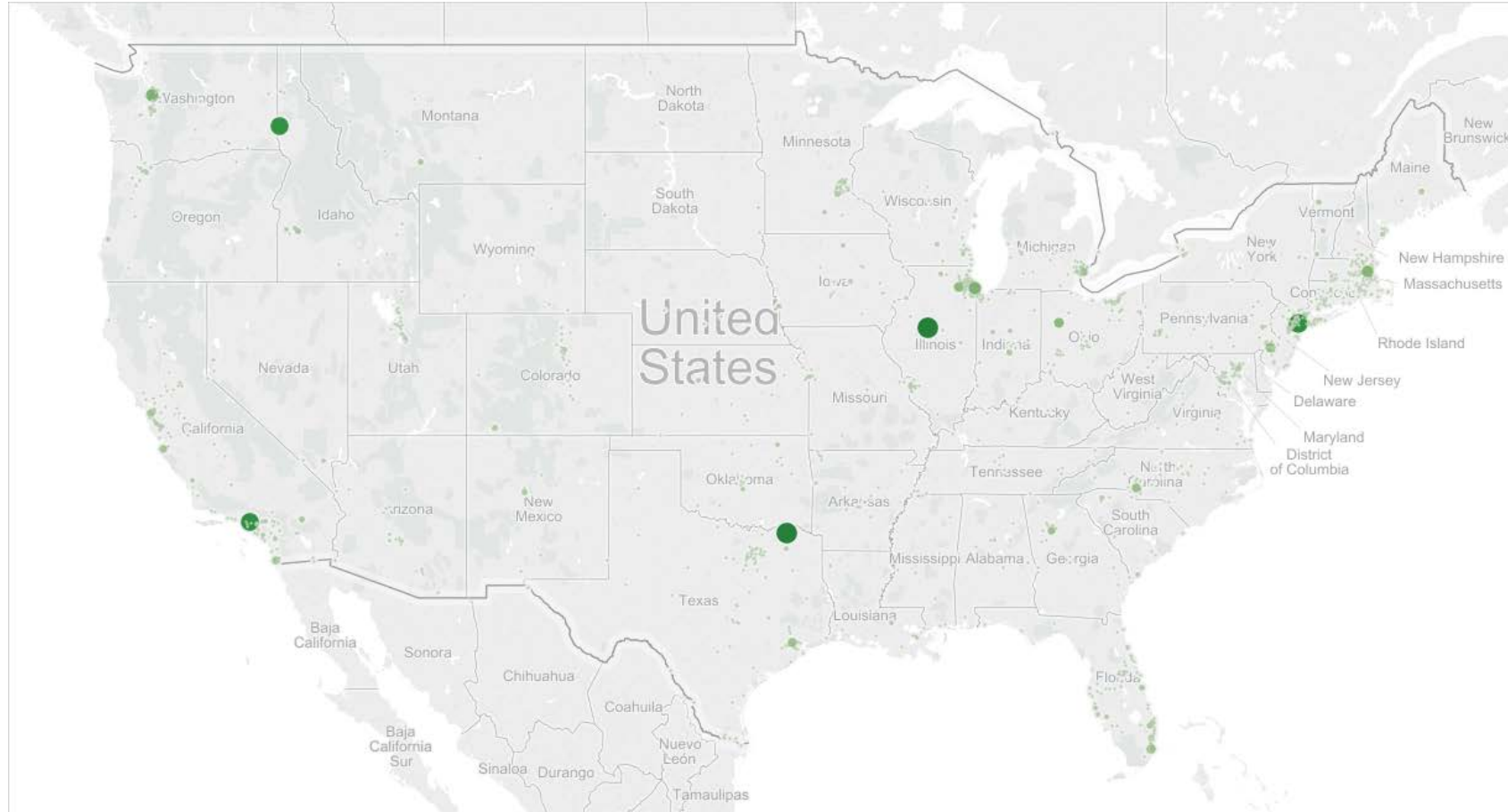
5 Guidelines

- If it looks significant it should be significant!
- Grey is your best friend.
- Be aware of misleading graphs.
- Who wants pie (charts)?
- Visualizations help clarify not simplify.

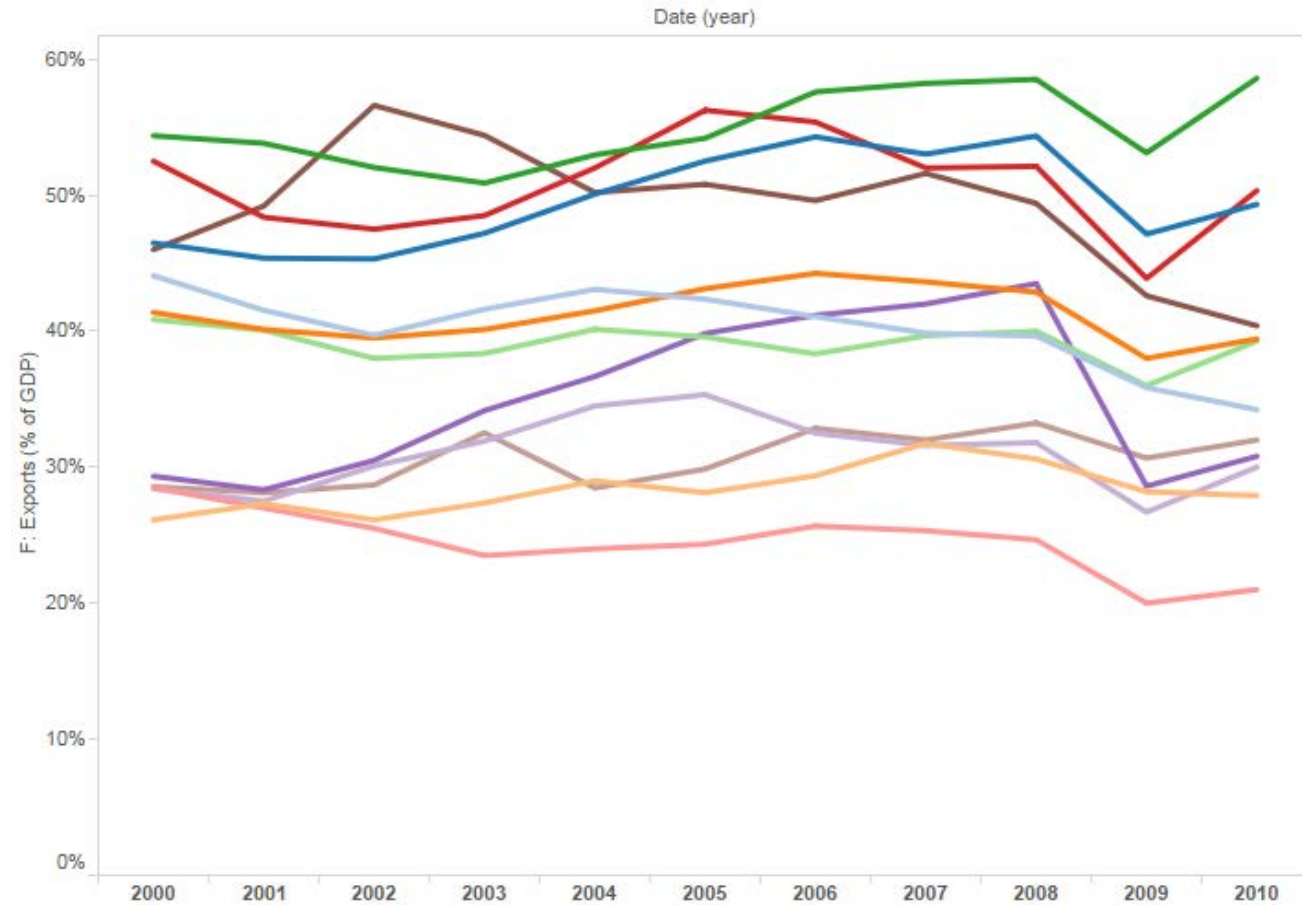
If it looks significant it should be significant!



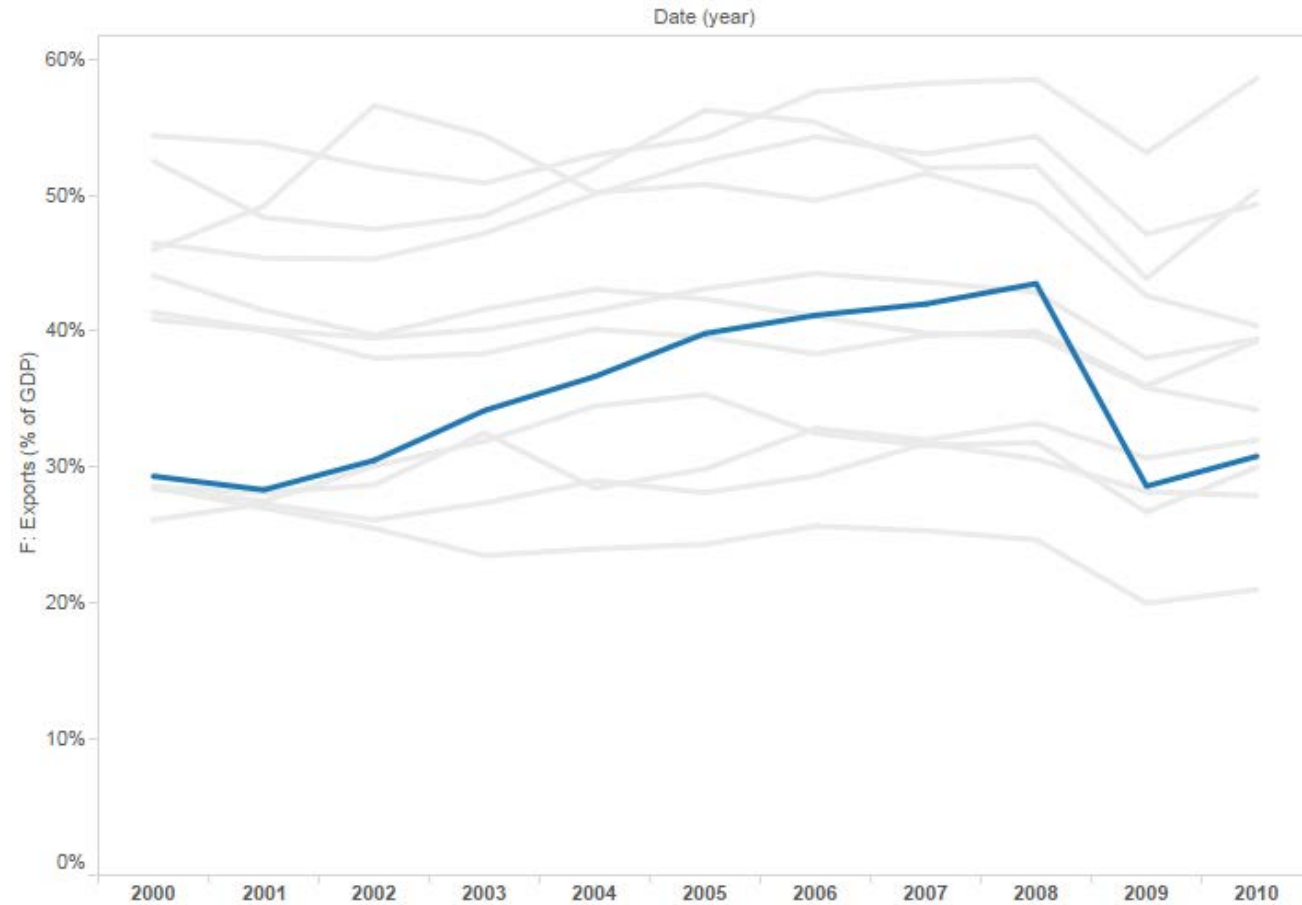
If it looks significant it should be significant!



Grey is your best friend

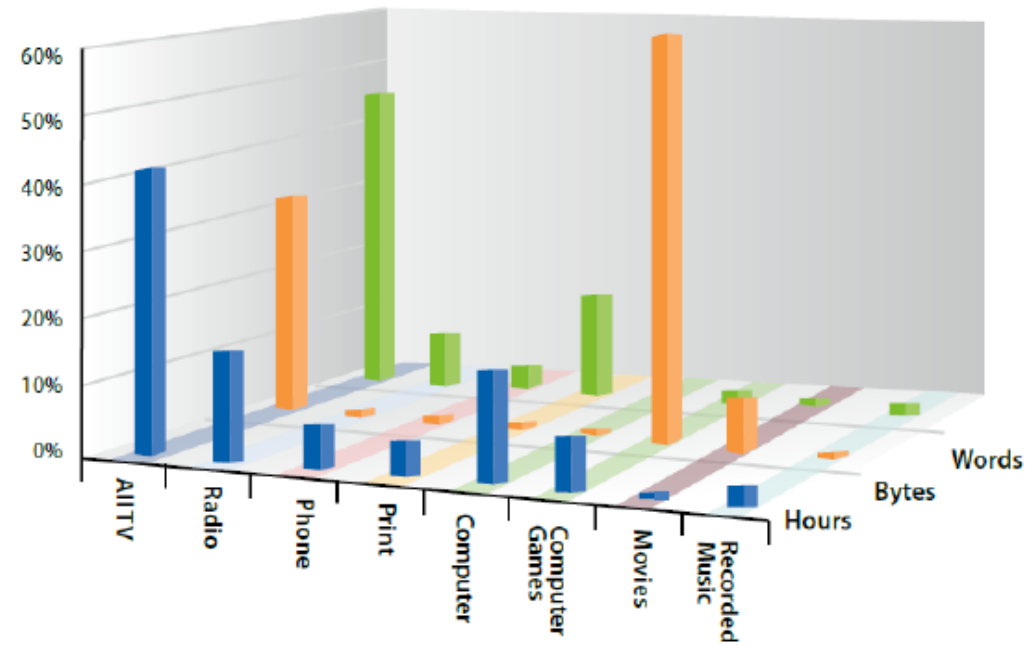


Grey is your best friend

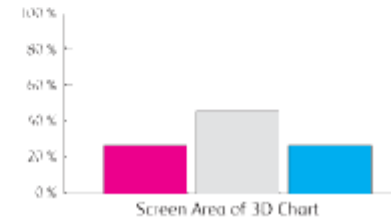
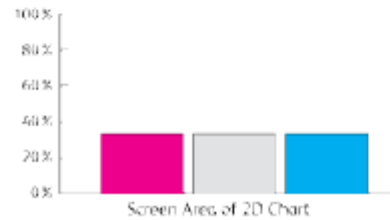
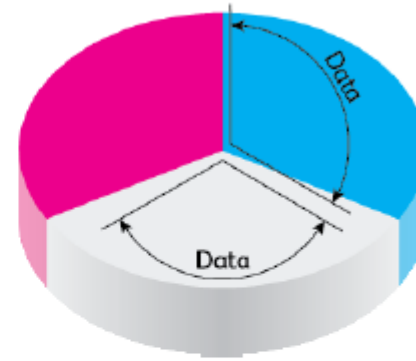
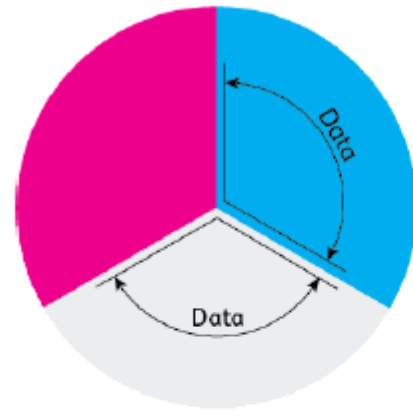


Be aware of misleading graphs

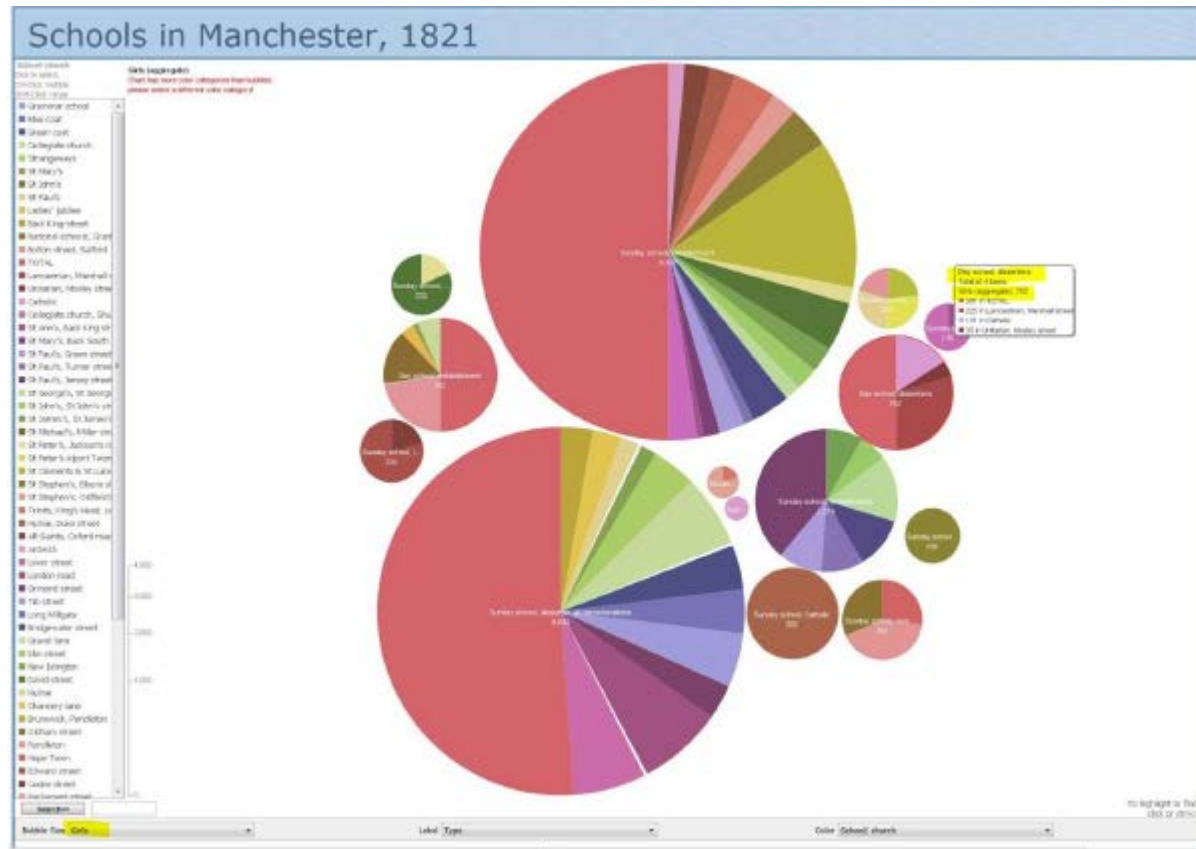
Misleading decoration



Be aware of misleading graphs



Who wants pie (charts)?



Visualizations help clarify not simplify.

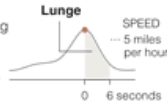
Lunge Feeding

Scientists tracking fin whales have created the first detailed model of how they feed. After gliding to depths of more than 600 feet in search of krill, a fin whale will repeatedly accelerate and open its mouth wide, engulfing about 20 pounds of krill and more than its own weight in water as it grinds to a halt.

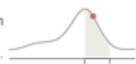


START OF LUNGE
After accelerating into a school of krill, the whale opens its mouth.

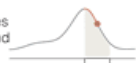
Lunge
SPEED
5 miles per hour
0 6 seconds



2 SECONDS
Grooves in the blubber between the lower jaws begin to expand.



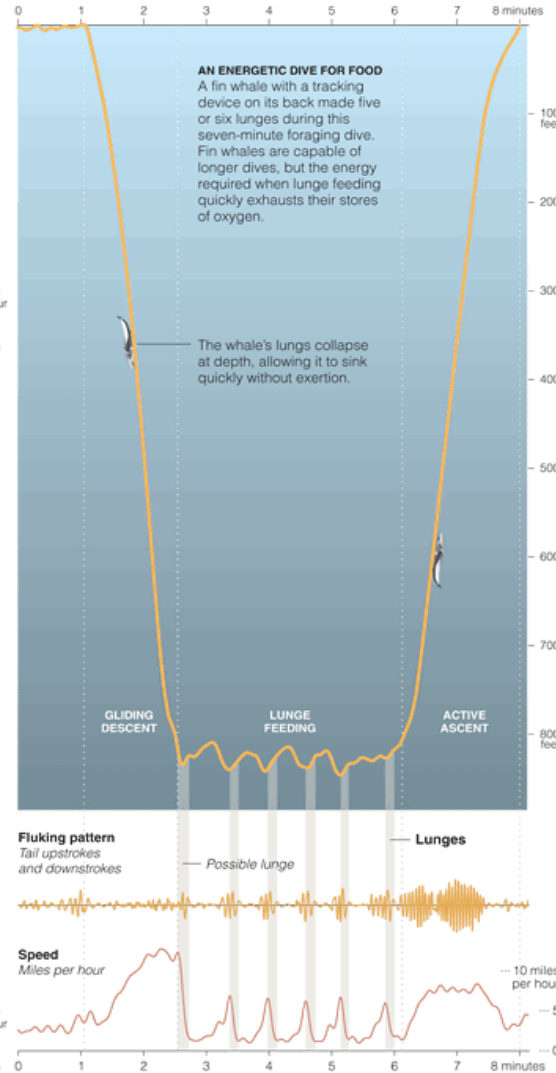
3 SECONDS
Now fully open, the mouth causes massive drag and deceleration.



4 SECONDS
The closing mouth continues to drag as the whale pushes forward.



6 SECONDS
The whale starts to filter out the krill and prepare for another lunge.



Sources: Jeremy A. Goldbogen; Nicholas D. Pyenson; *Journal of Experimental Biology*; *Marine Ecology Progress Series*

JONATHAN CORIUM/THE NEW YORK TIMES; WHALE ILLUSTRATIONS BY NICHOLAS D. PYENSON

<http://13pt.com/projects/nyt071211/>

Questions?