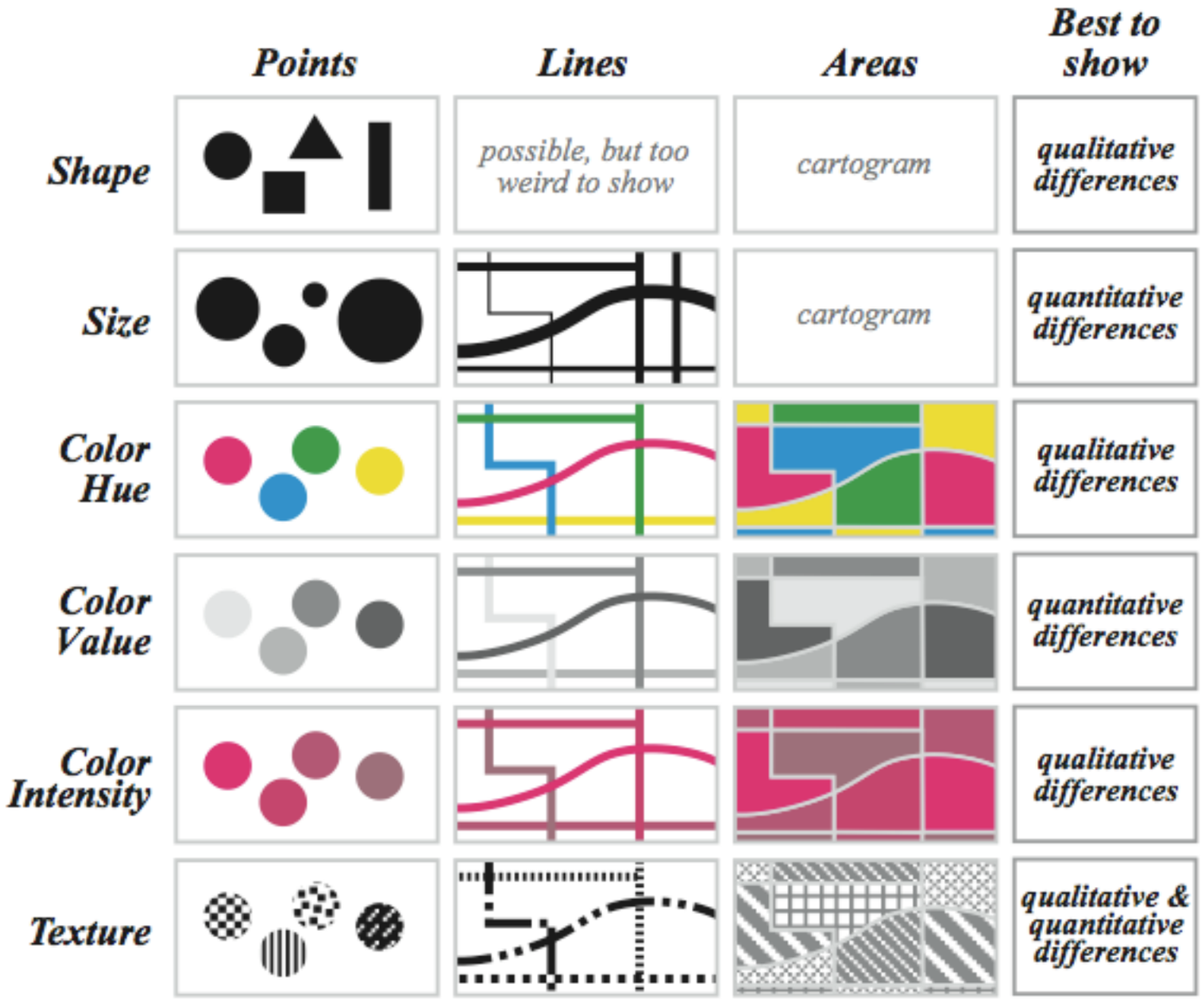
lecture 04:
Gestalt and bar charts

September 25, 2017

Flashback

Some (all?) of the visual attributes we have to play with



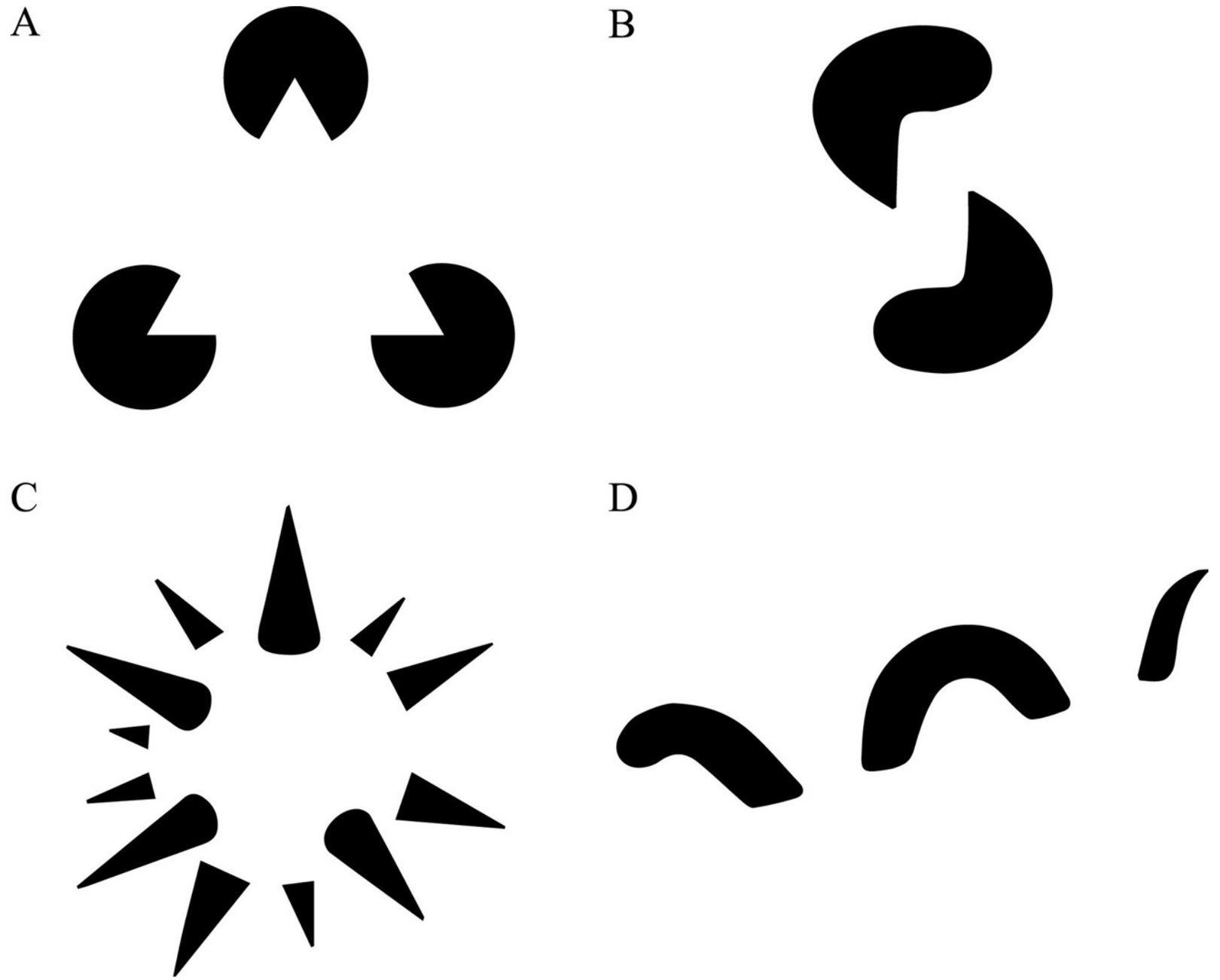
Jacques Bertin, *Semiology of Graphics*. 1967

The gestalt effect

"The whole is other than the sum of the parts"

- Kurt Koffka

1. Reification

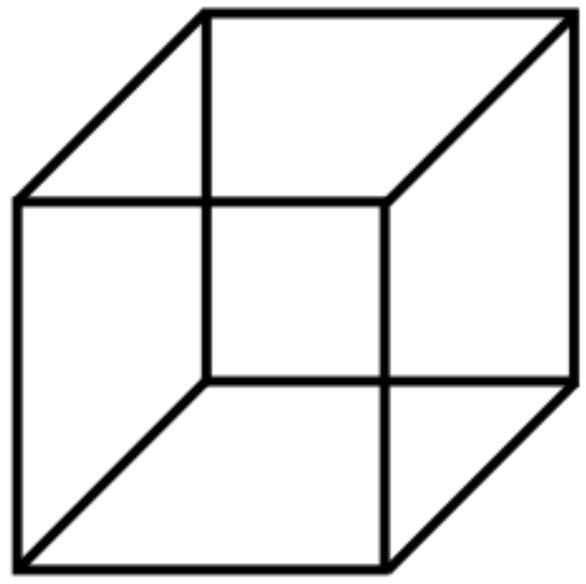


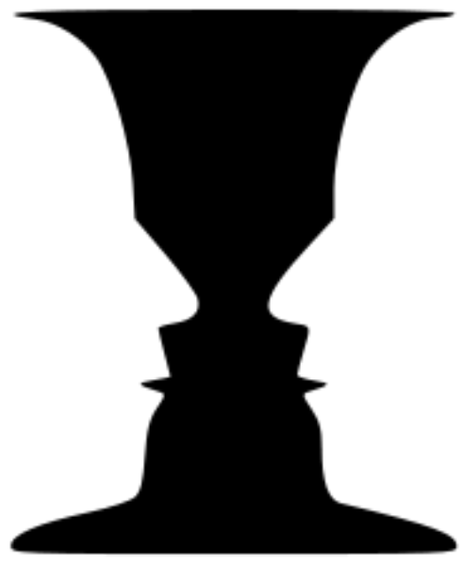
via wikipedia

2. Emergence

Life Magazine: 58;7, 1965-02-19, p 120. Photographer Ronald C James
via Jordan Crouser

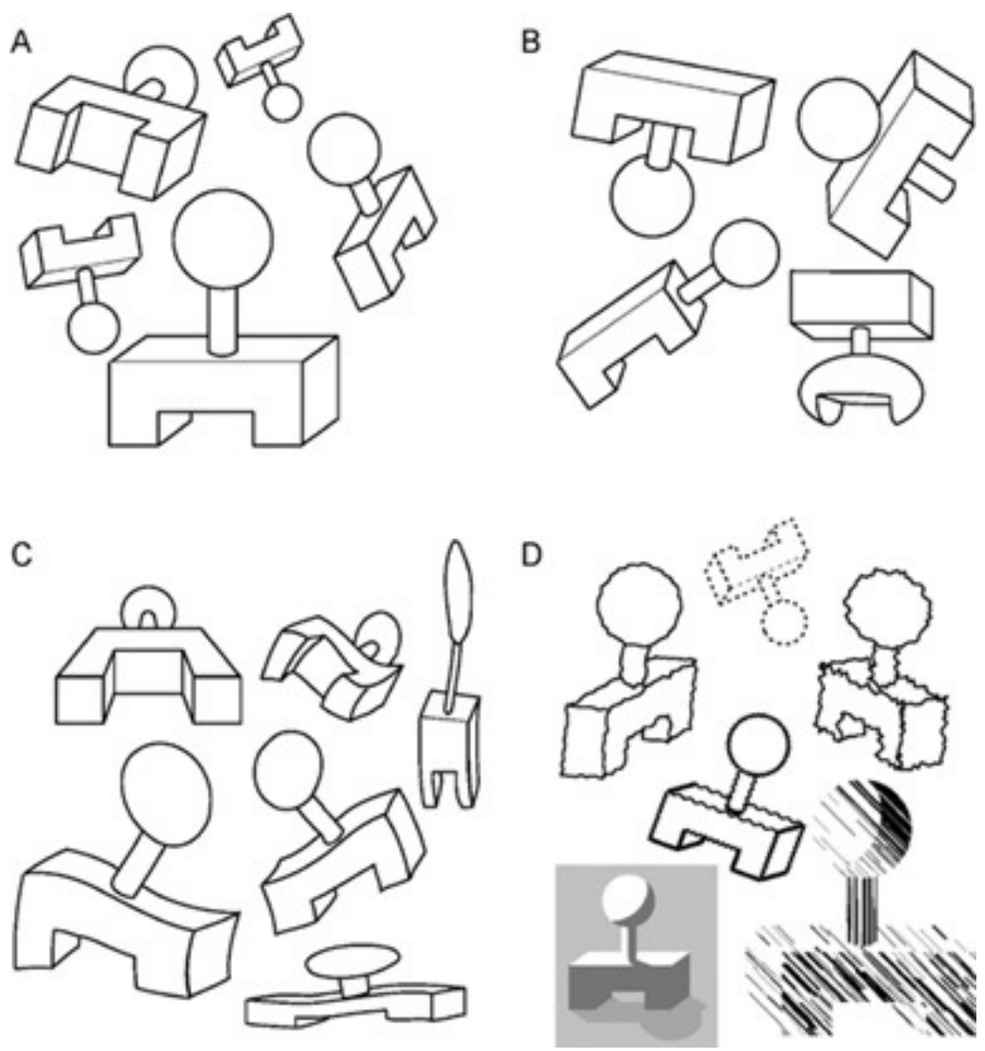
3. Multistability





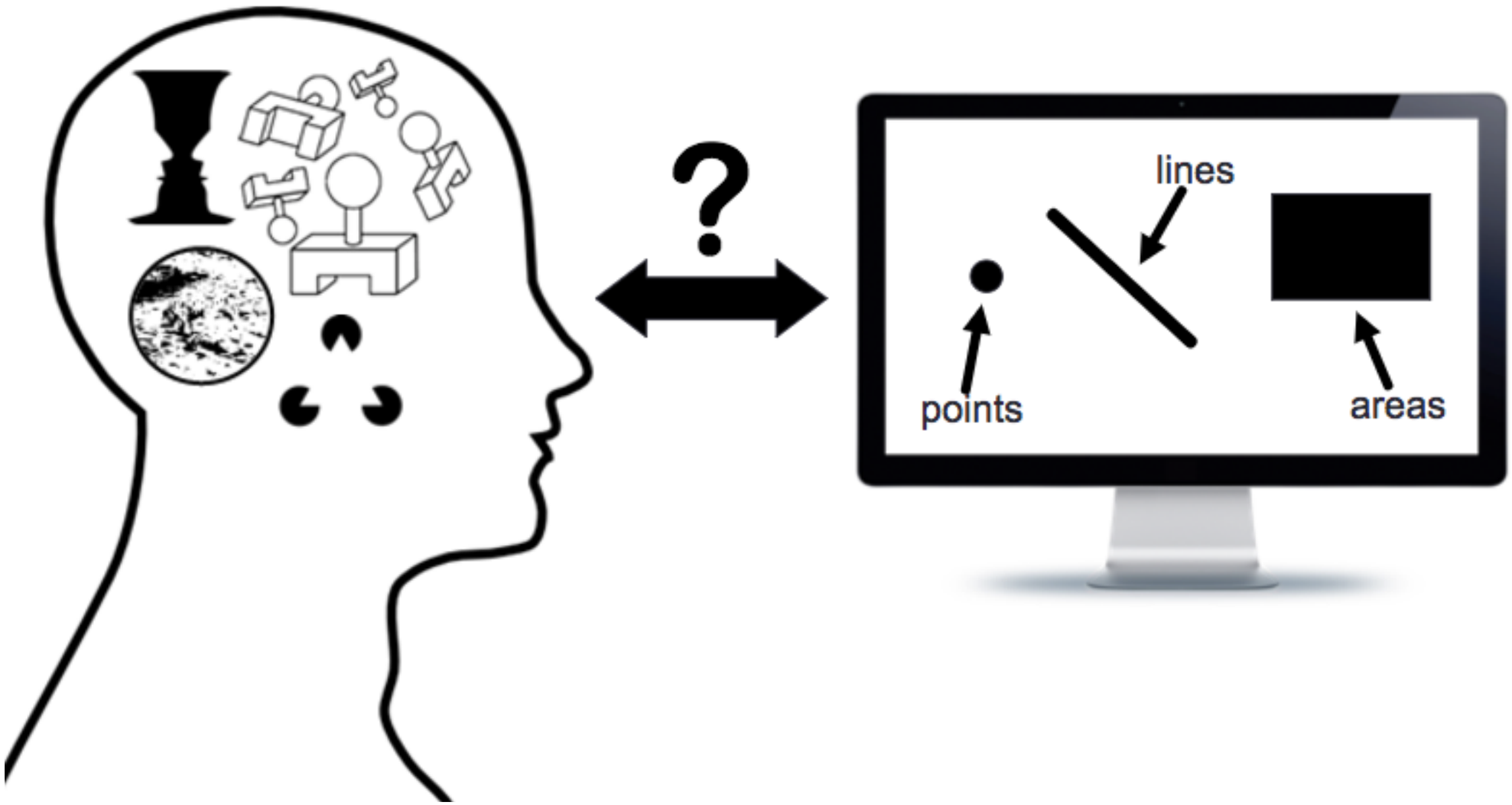
via wikipedia

4. Invariance



via wikipedia

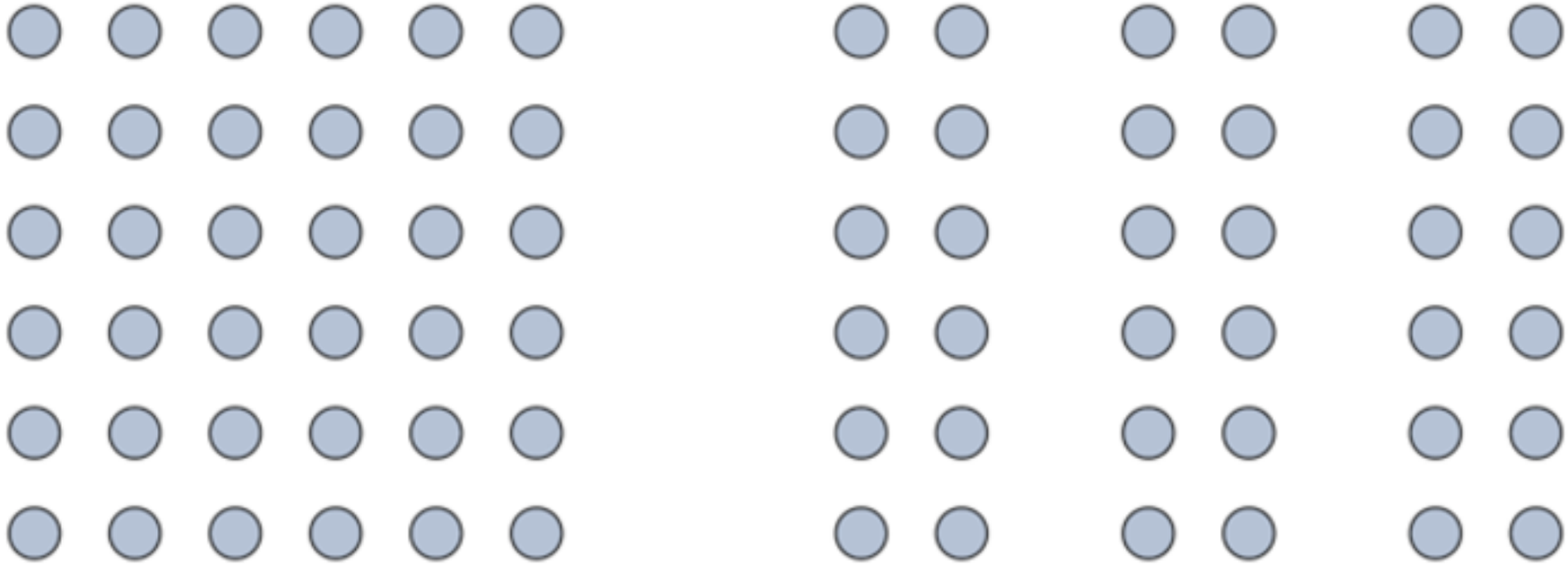
What does this mean for visualization?



via Jordan Crouser

Law of proximity

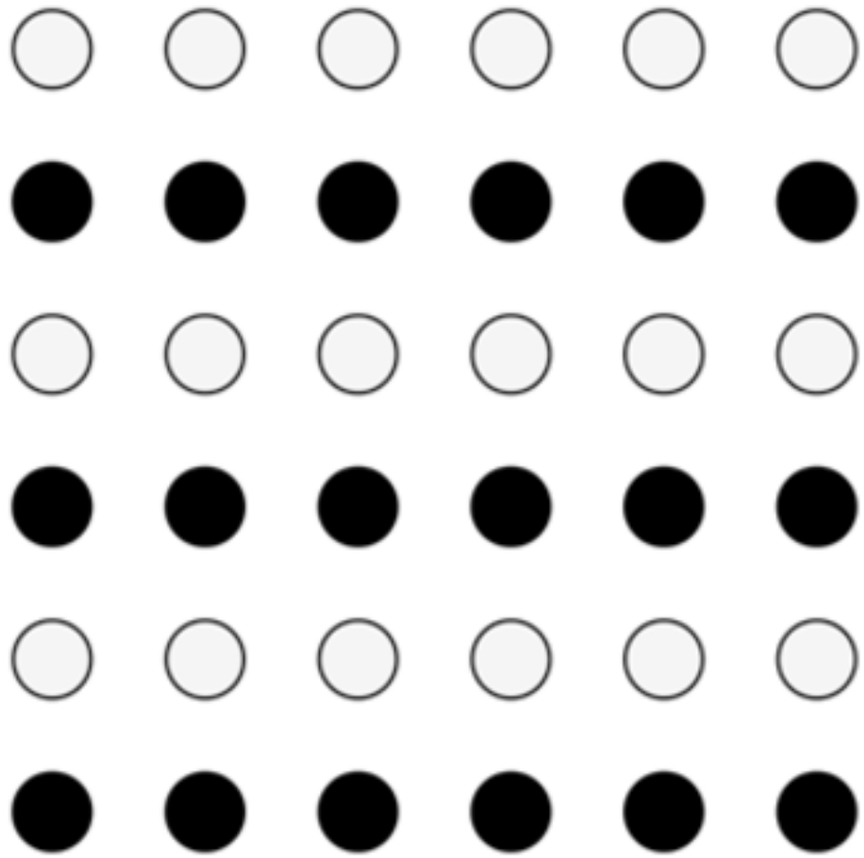
We interpret objects that are **close** to each other as a group



via Jordan Crouser

Law of similarity

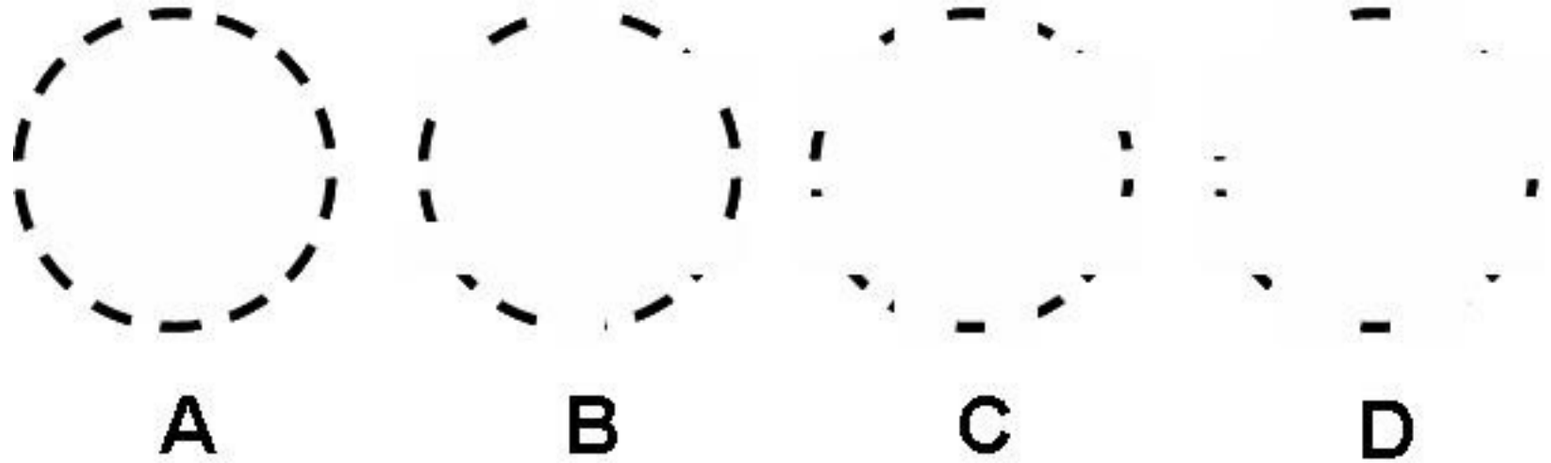
We interpret objects that are **visually similar** to each other as a group



via Jordan Crouser

Law of closure

When parts of a picture are missing, we fill in the visual gap



http://changingminds.org/explanations/perception/gestalt/closure.htm

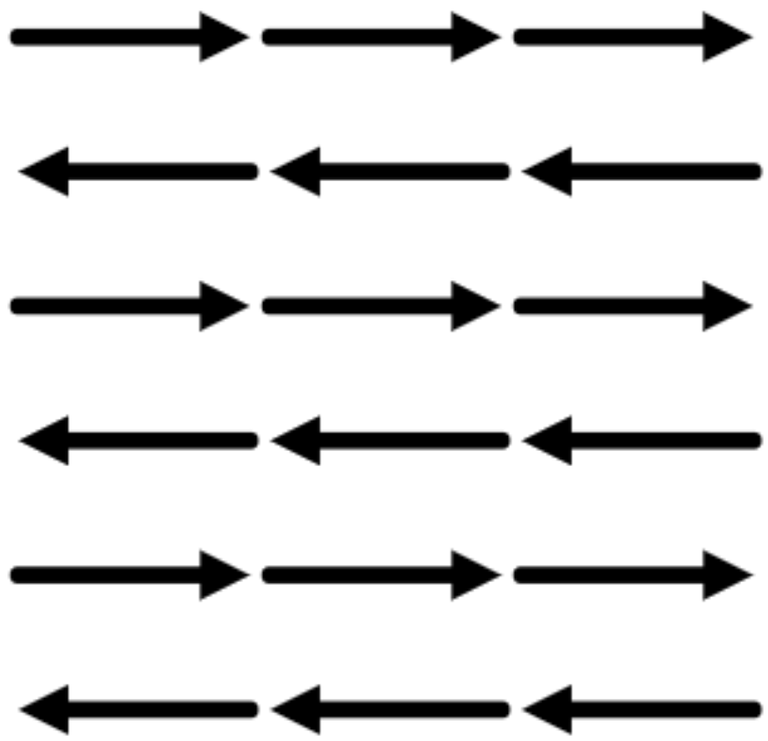
Law of symmetry

We perceive objects as being **symmetrical**, arranged around a center point

[ ] { } [ ]

Law of common fate

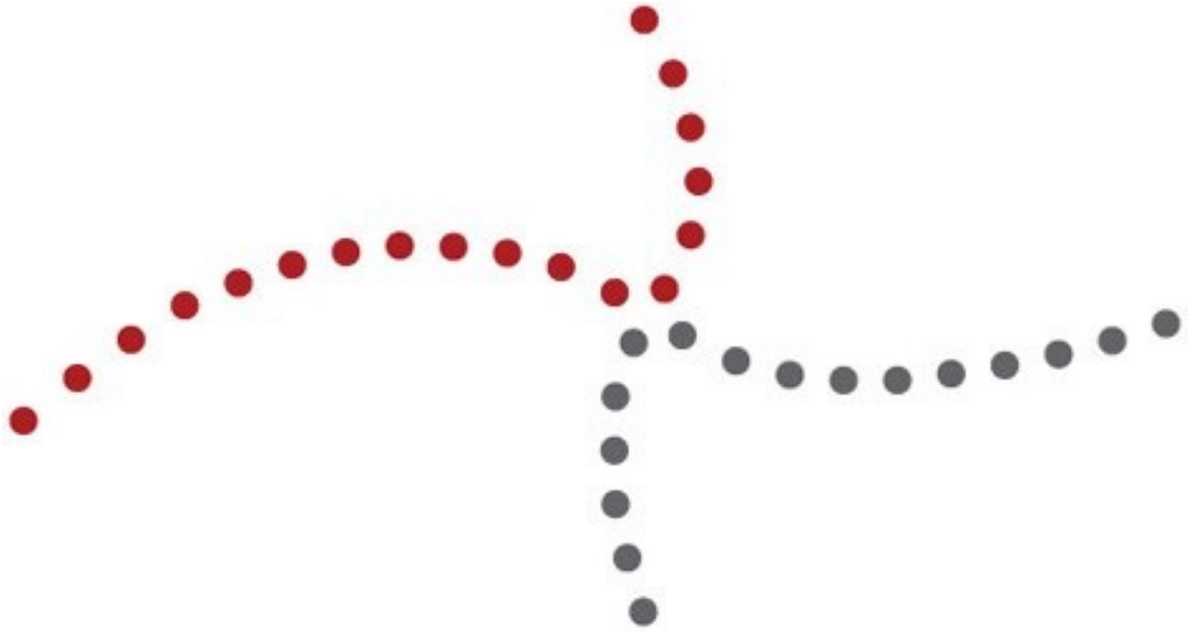
We group objects that we perceive to be moving along the same path



via Jordan Crouser

Law of continuity

We tend to group objects along the **smoothest path**



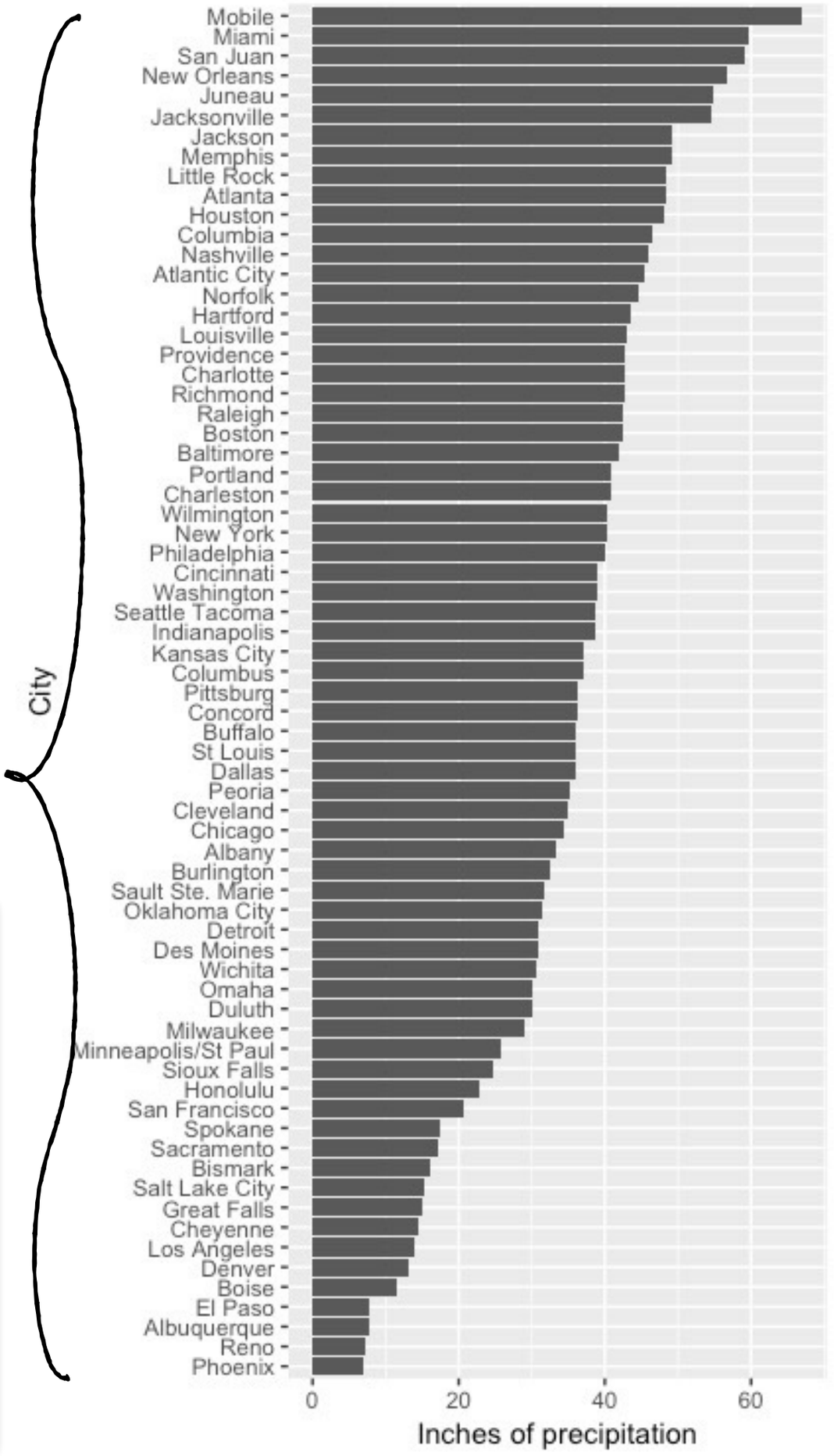
https://psycheleven2015.wordpress.com/category/the-gestalt-psychology/

Bar charts

Bar charts

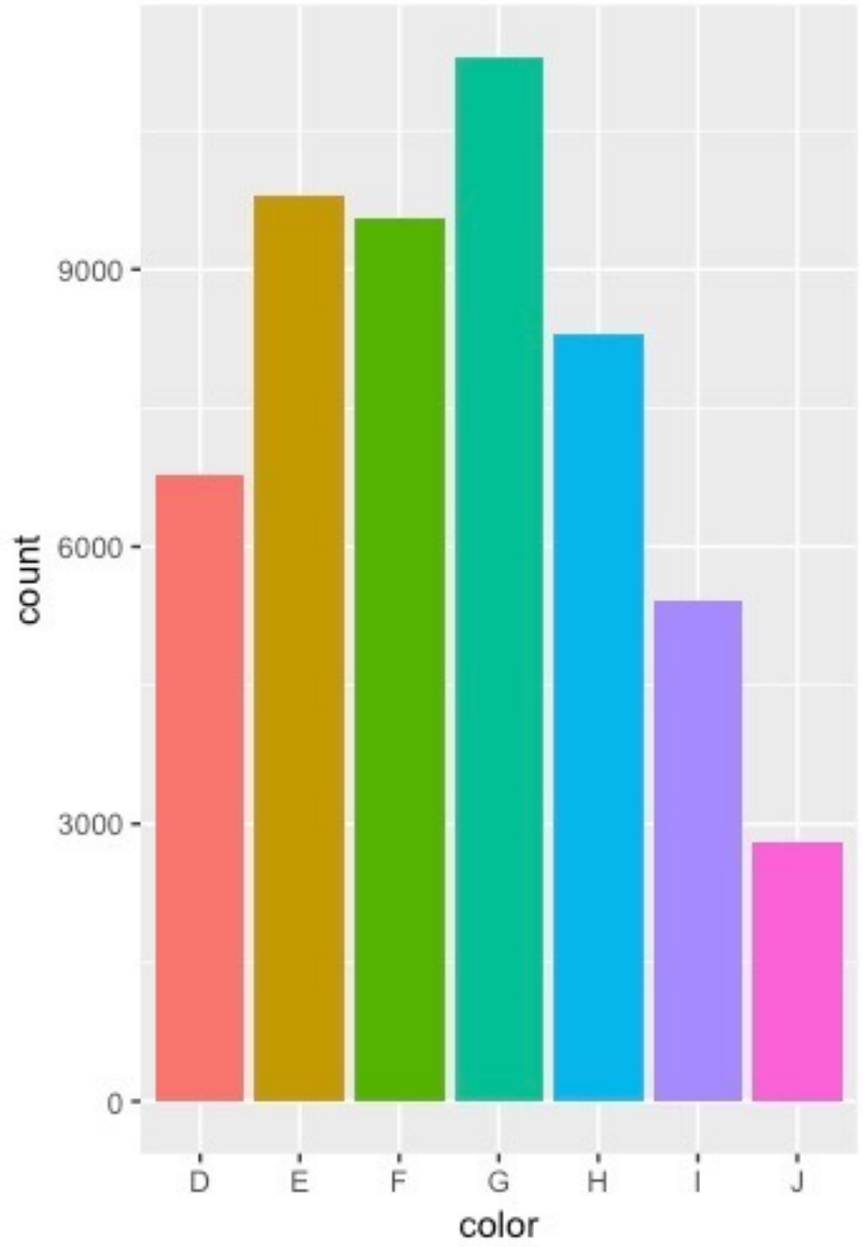
- A way to visualize one categorical variable
- Uses bars to show comparisons between categories
- Mapping: value of variable to height (or length) of bar

precip	City
67.0	Mobile
59.8	Miami
59.2	San Juan
56.8	New Orleans
54.7	Juneau
54.5	Jacksonville
49.2	Jackson
49.1	Memphis
48.5	Little Rock
48.3	Atlanta
48.2	Houston



Bar charts

- Sometimes, it's necessary to aggregate first



categories

carat	cut	color	clarity	depth	table	price	x	y	z
0.23	Ideal	E	SI2	61.5	55.0	326	3.95	3.98	2.43
0.21	Premium	E	SI1	59.8	61.0	326	3.89	3.84	2.31
0.23	Good	E	VS1	56.9	65.0	327	4.05	4.07	2.31
0.29	Premium	I	VS2	62.4	58.0	334	4.20	4.23	2.63
0.31	Good	J	SI2	63.3	58.0	335	4.34	4.35	2.75
0.24	Very Good	J	VVS2	62.8	57.0	336	3.94	3.96	2.48
0.24	Very Good	I	VVS1	62.3	57.0	336	3.95	3.98	2.47
0.26	Very Good	H	SI1	61.9	55.0	337	4.07	4.11	2.53
0.22	Fair	E	VS2	65.1	61.0	337	3.87	3.78	2.49
0.23	Very Good	H	VS1	59.4	61.0	338	4.00	4.05	2.39
0.30	Good	J	SI1	64.0	55.0	339	4.25	4.28	2.73

color	total
D	6775
E	9797
F	9542
G	11292
H	8304
I	5422
J	2808