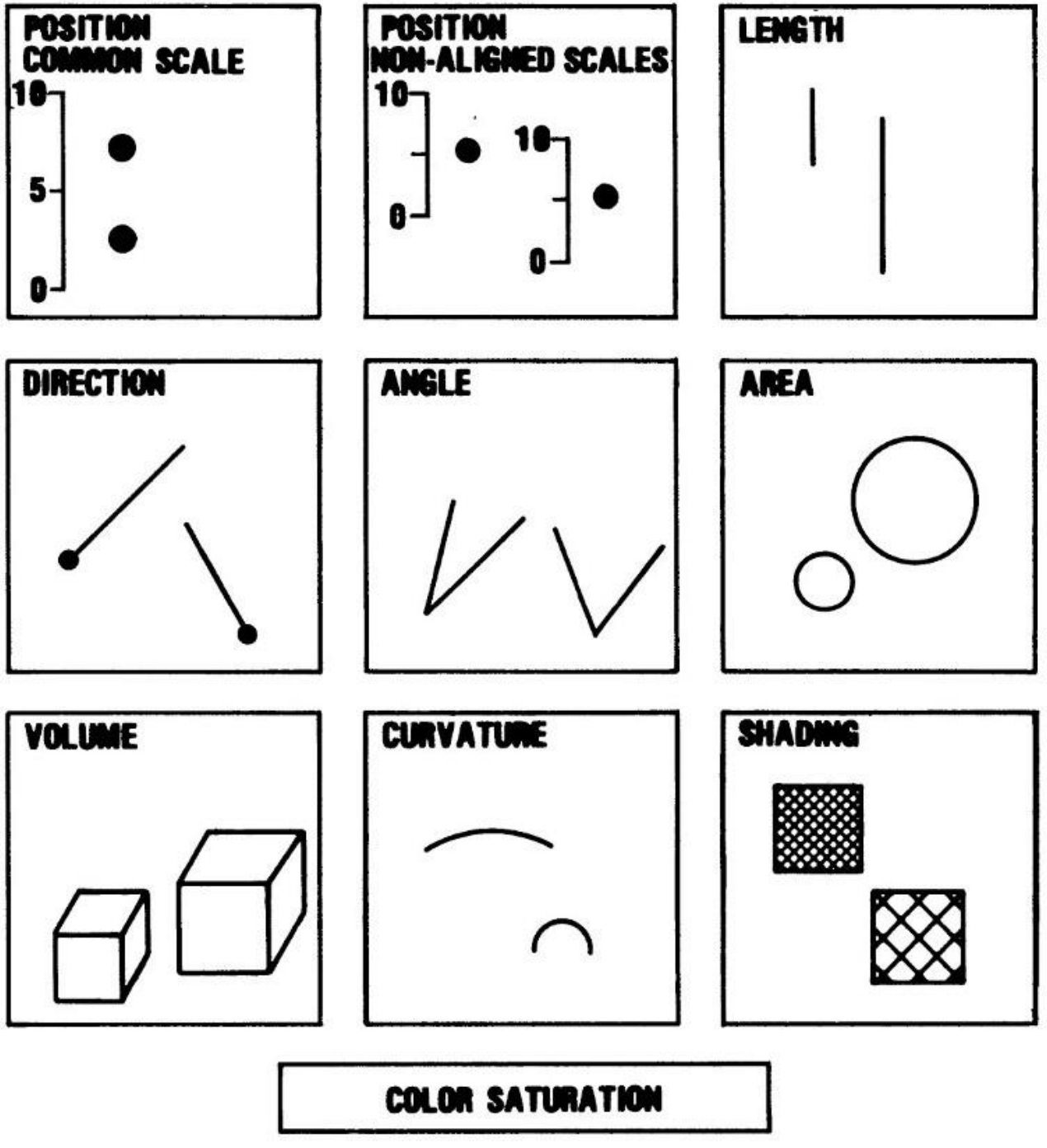
PERCPCJA: 39 badań percepcji człowieka w 30 mniut

Małgorzata Sobczak, Marta Jóźwik


POSITION
COMMON SCALE
10
5
0
POSITION
NON-ALIGNED SCALES
10
0
10
0
LENGTH
DIRECTION
ANGLE
AREA
VOLUME
CURVATURE
SHADING
COLOR SATURATION

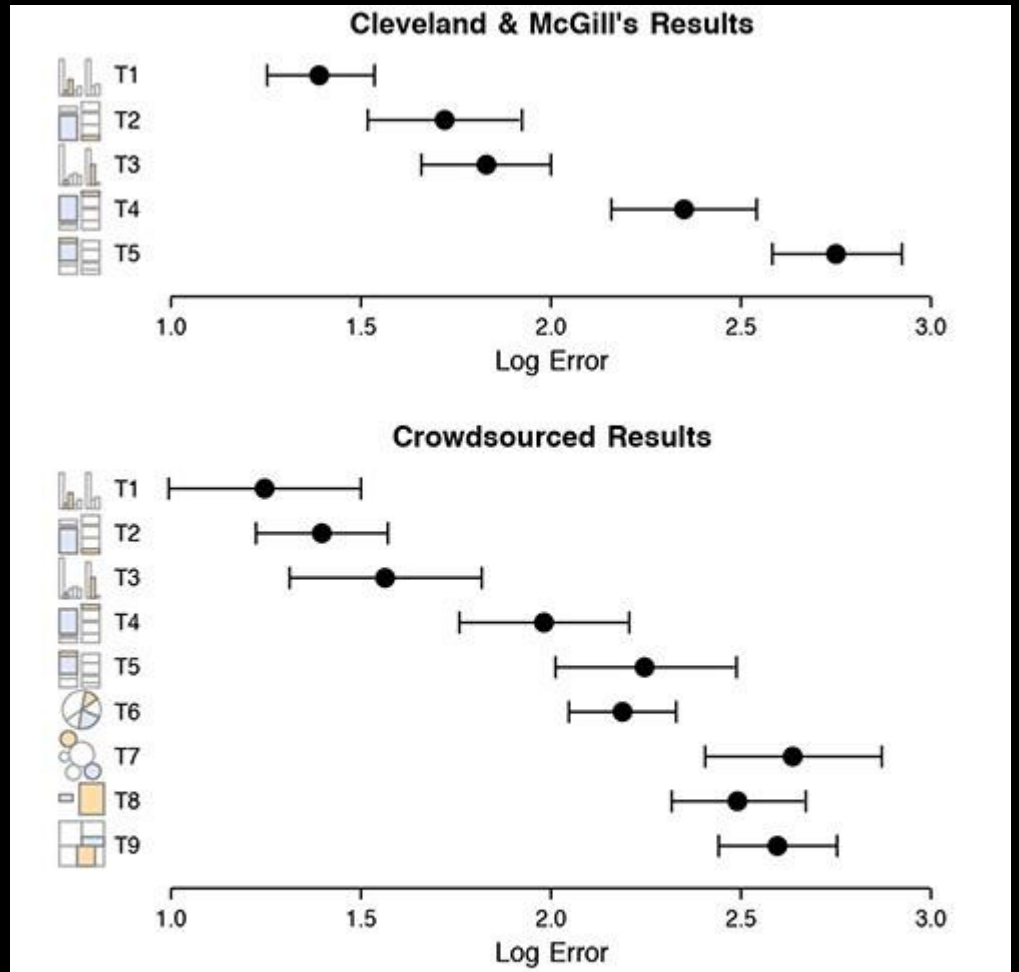


Figure 4: Proportional judgment results (Exp. 1A & B). Top: Cleveland & McGill's [7] lab study. Bottom: MTurk studies. Error bars indicate 95% confidence intervals.

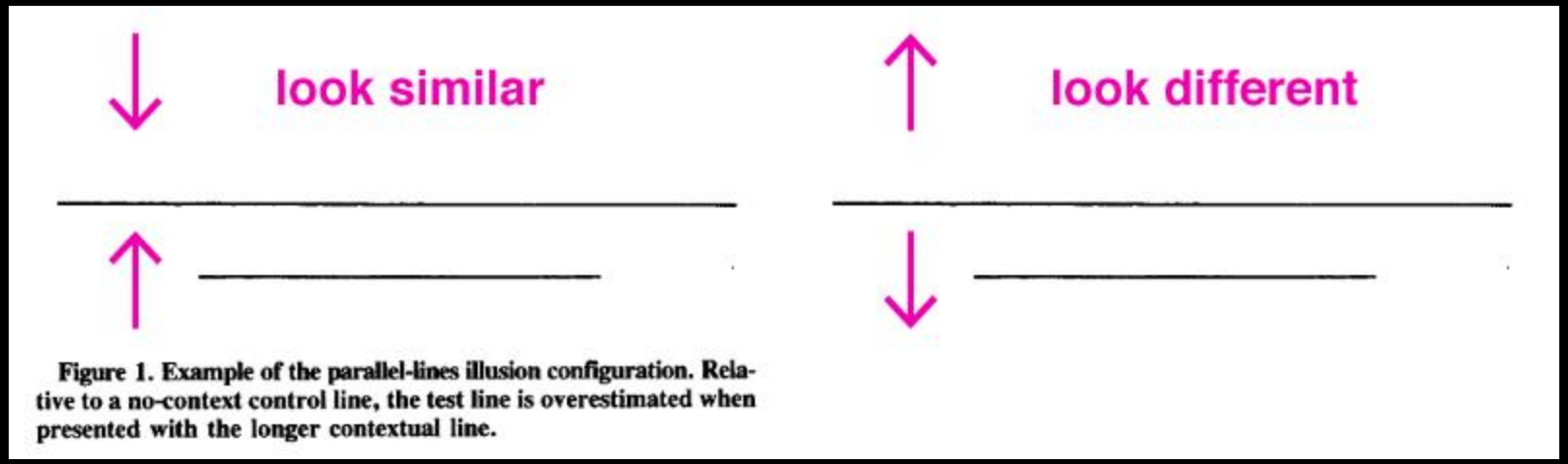


Figure 1. Example of the parallel-lines illusion configuration. Relative to a no-context control line, the test line is overestimated when presented with the longer contextual line.

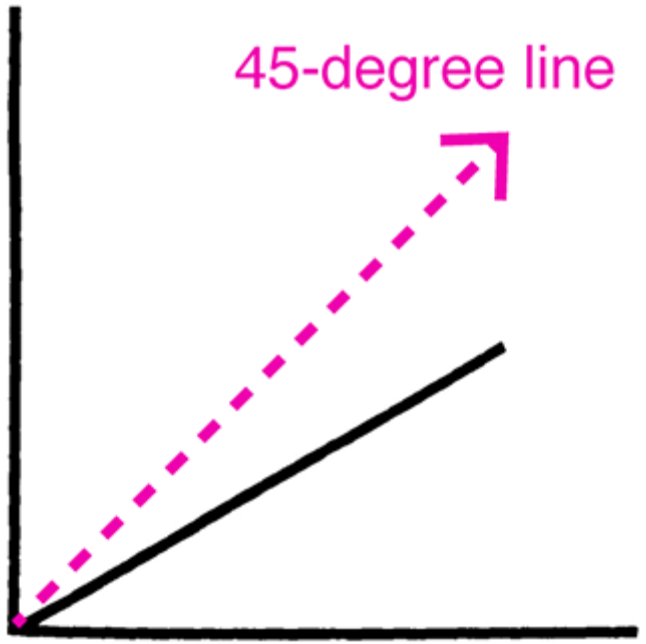
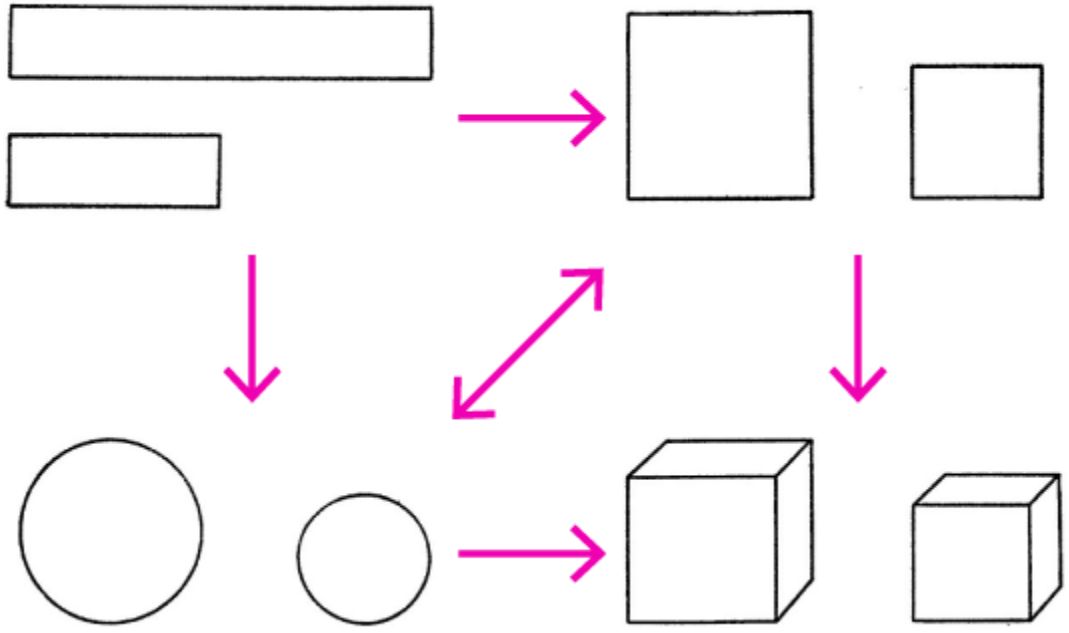


Figure 1. A sample stimulus configuration.

BARS, SQUARES, CIRCLES, AND CUBES SHOWING 50 TO 100 RELATIONSHIP



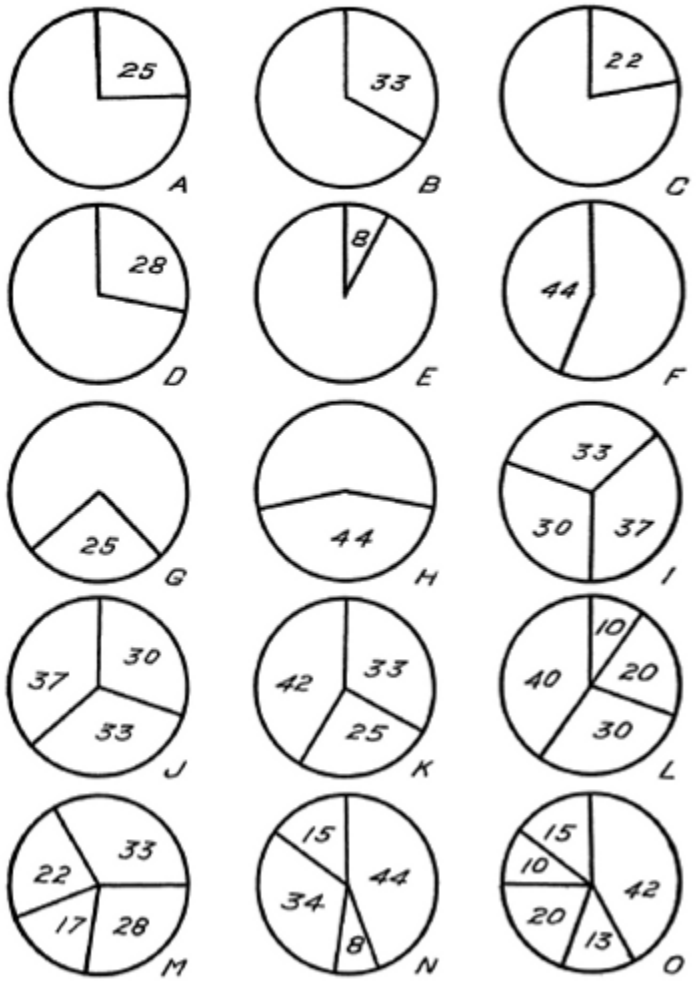


FIGURE I

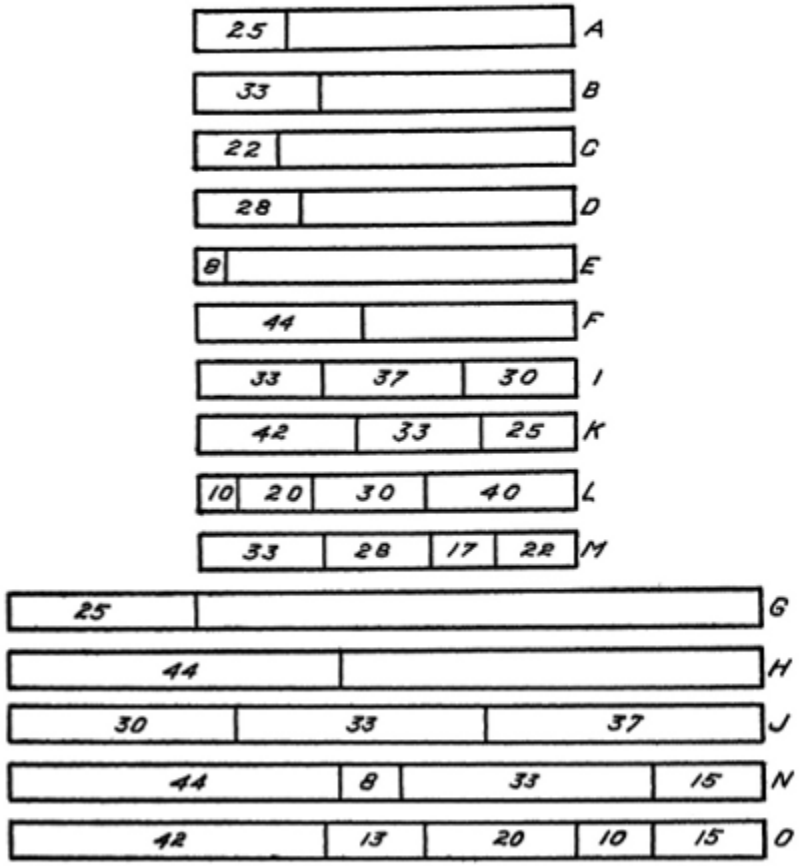
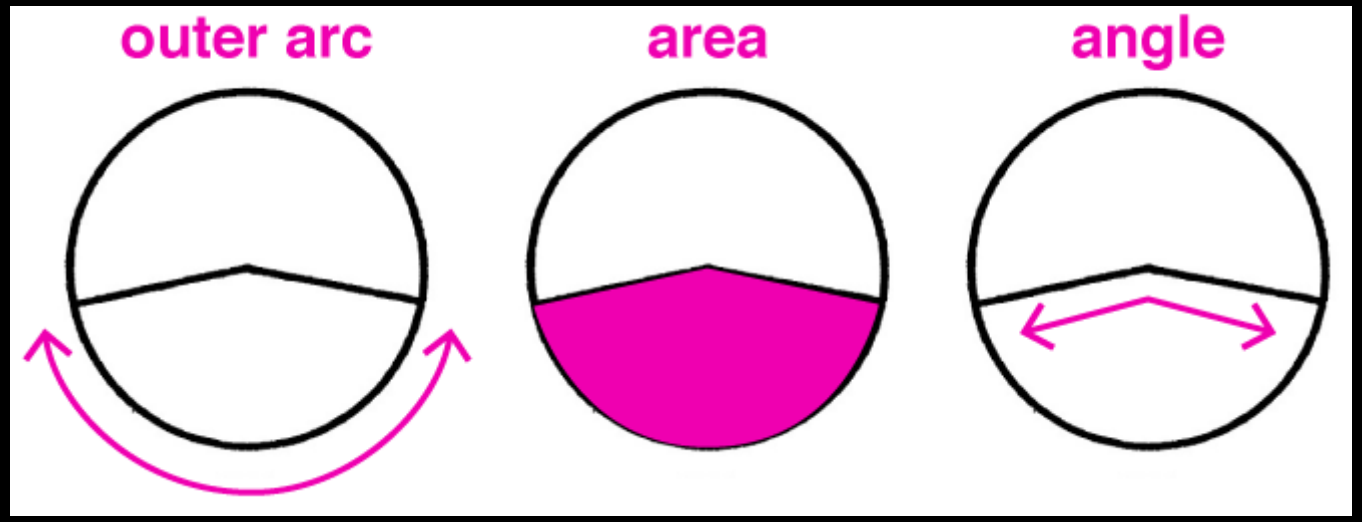
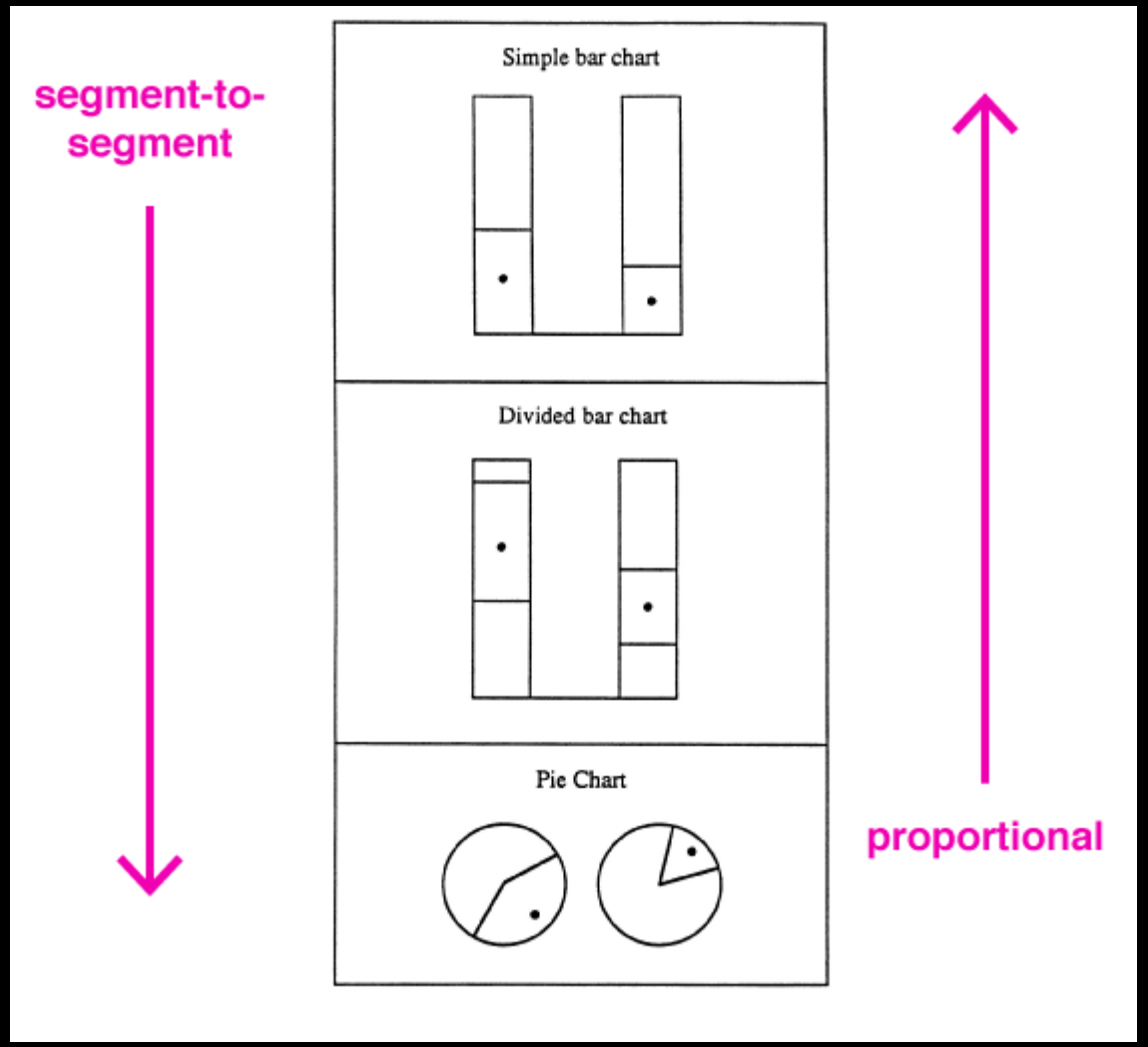
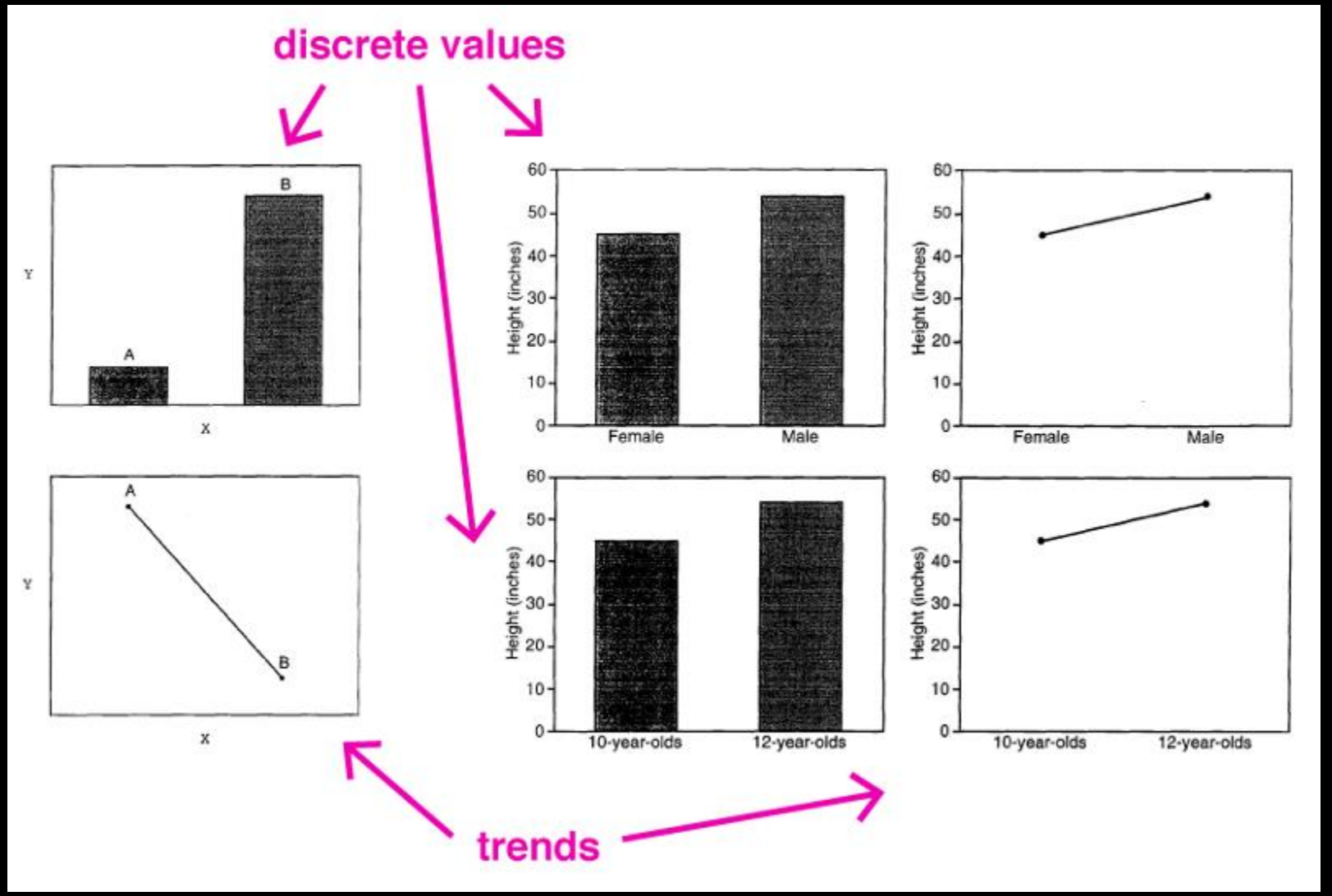
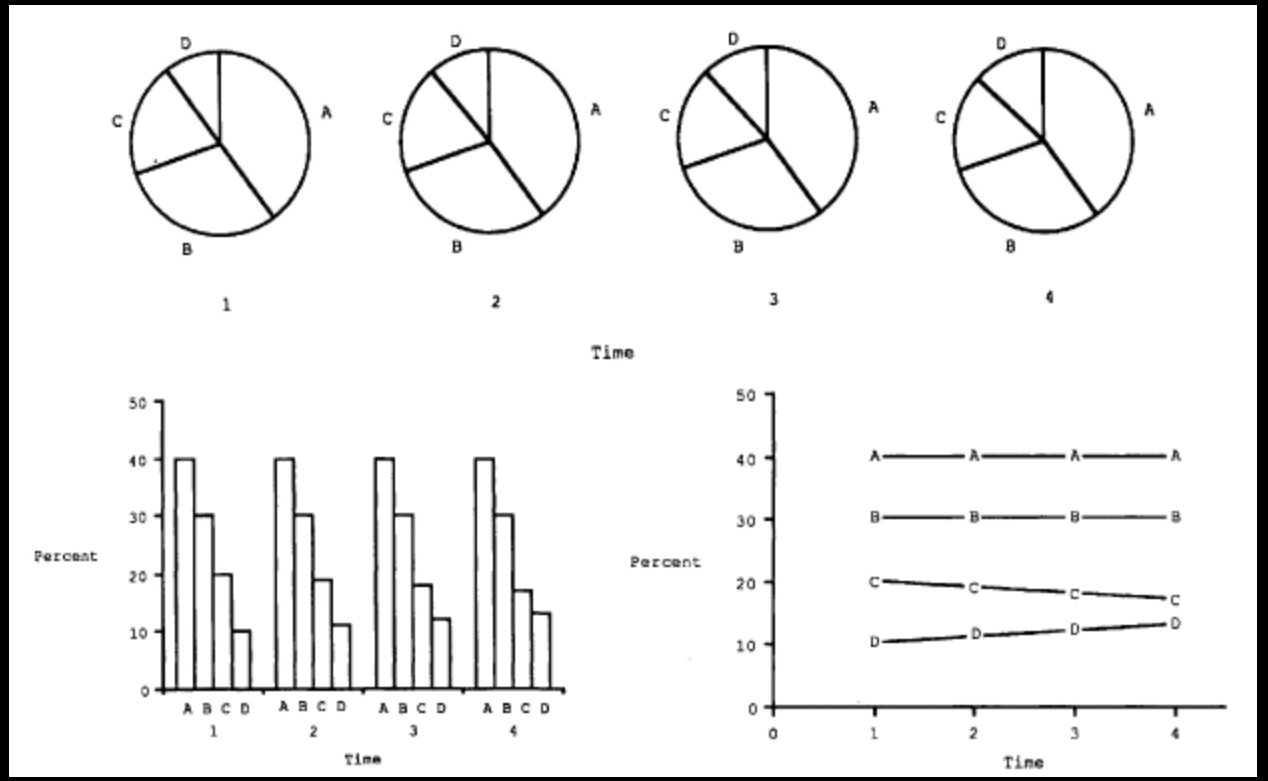


FIGURE II


outer arc
area
angle


segment-to-segment
Simple bar chart
Divided bar chart
Pie Chart
proportional


discrete values
Y
X
A
B
Height (inches)
Female
Male
10-year-olds
12-year-olds
trends


D
C
A
B
1
2
3
4
Time
Percent
50
40
30
20
10
0
A B C D
Time
A
B
C
D
0
1
2
3
4

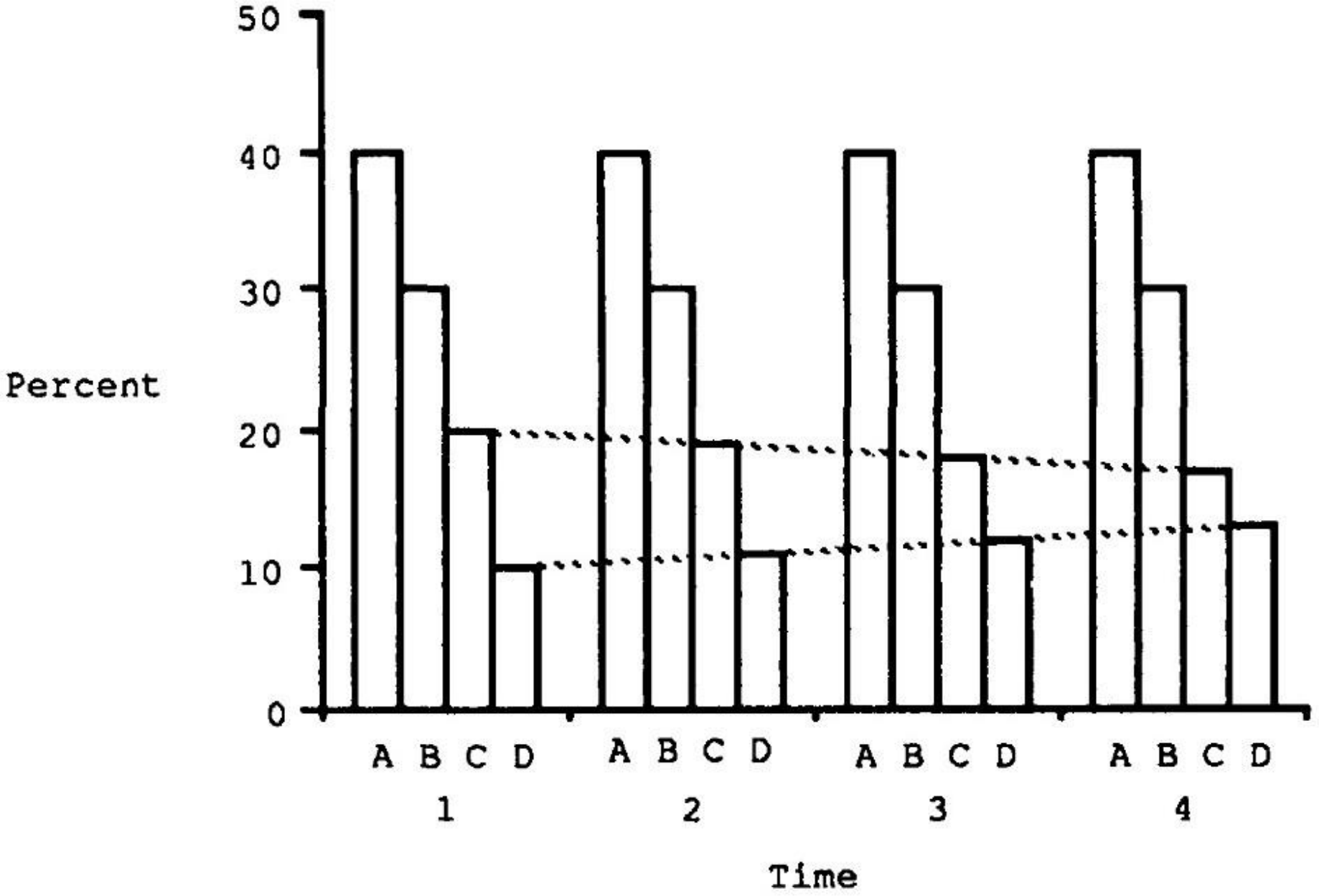


Figure 6. *An illustration of virtual lines. Subjects may mentally construct lines like these when judging change with bar graphs.*

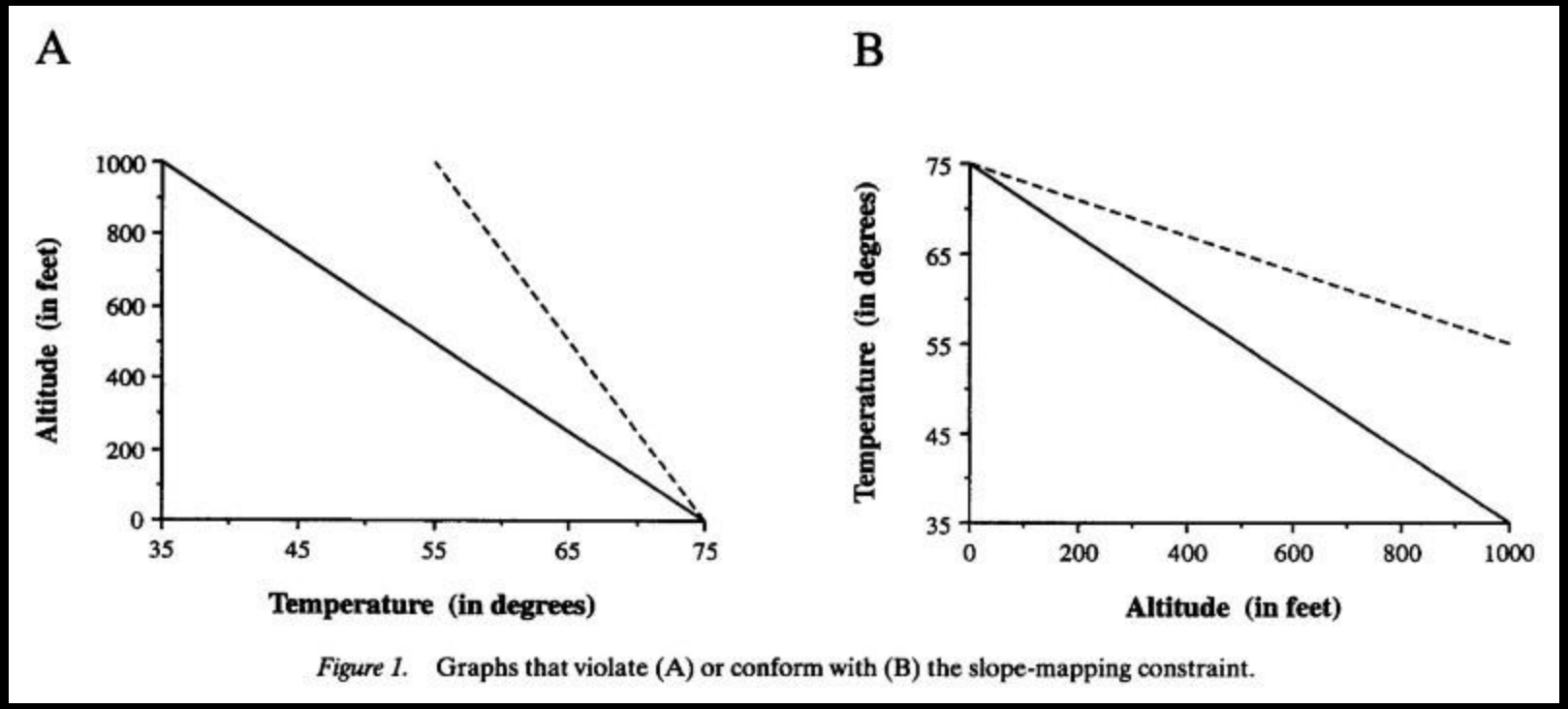
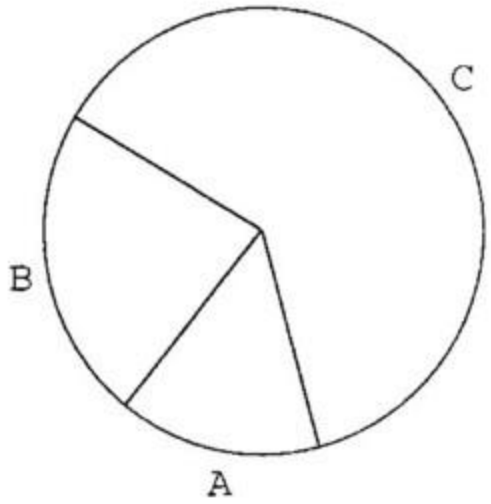
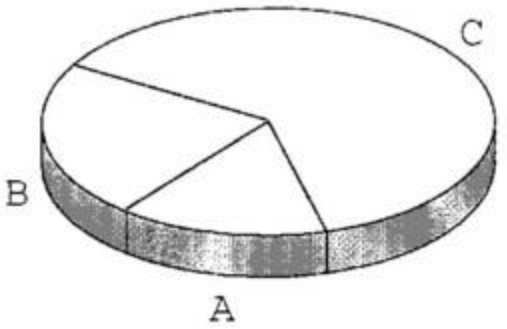
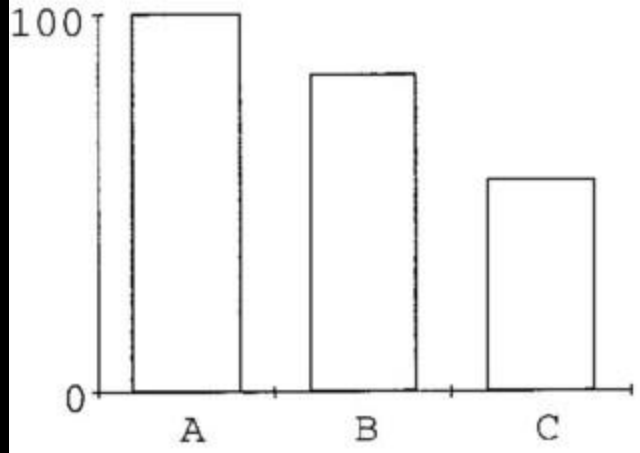
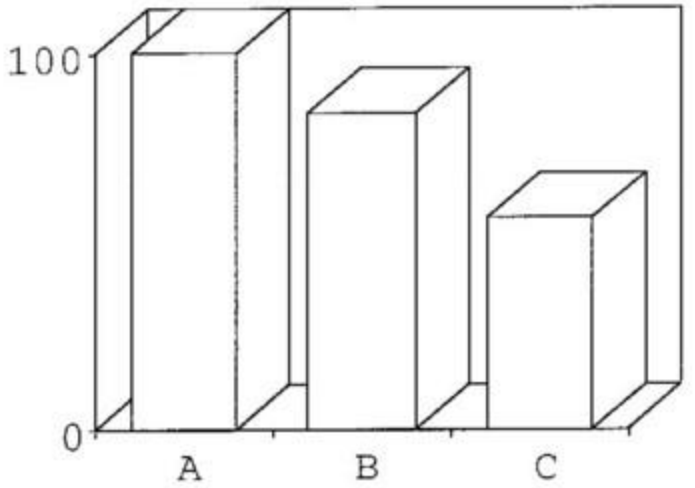


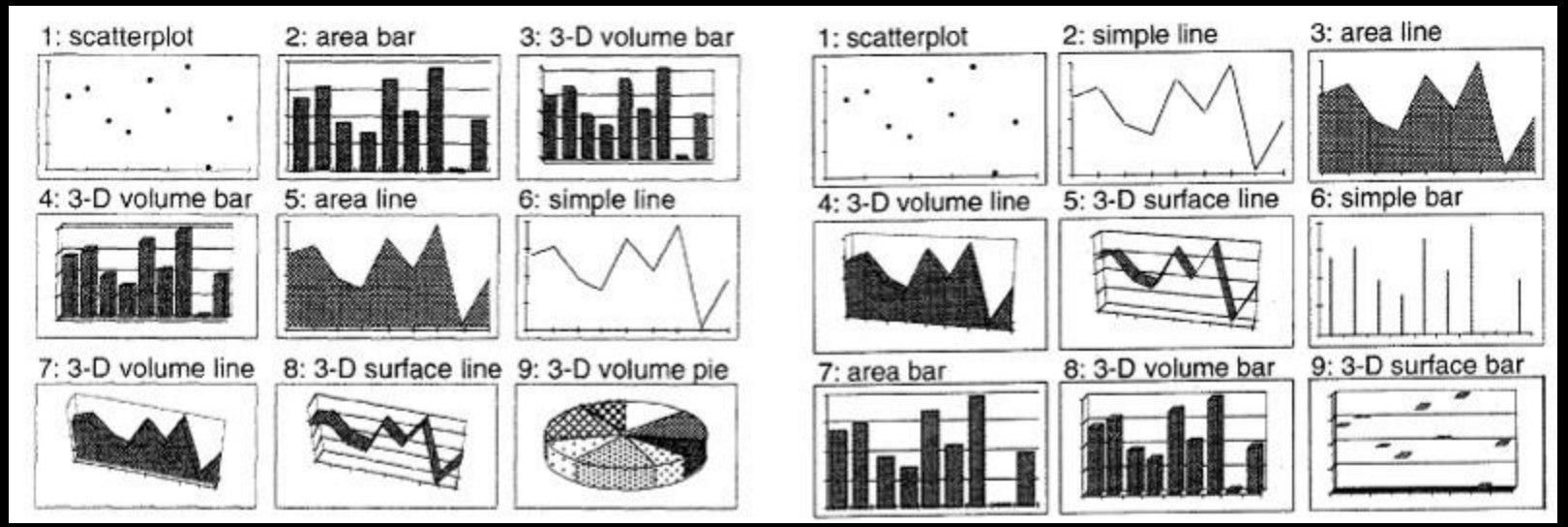
Figure 1. Graphs that violate (A) or conform with (B) the slope-mapping constraint.

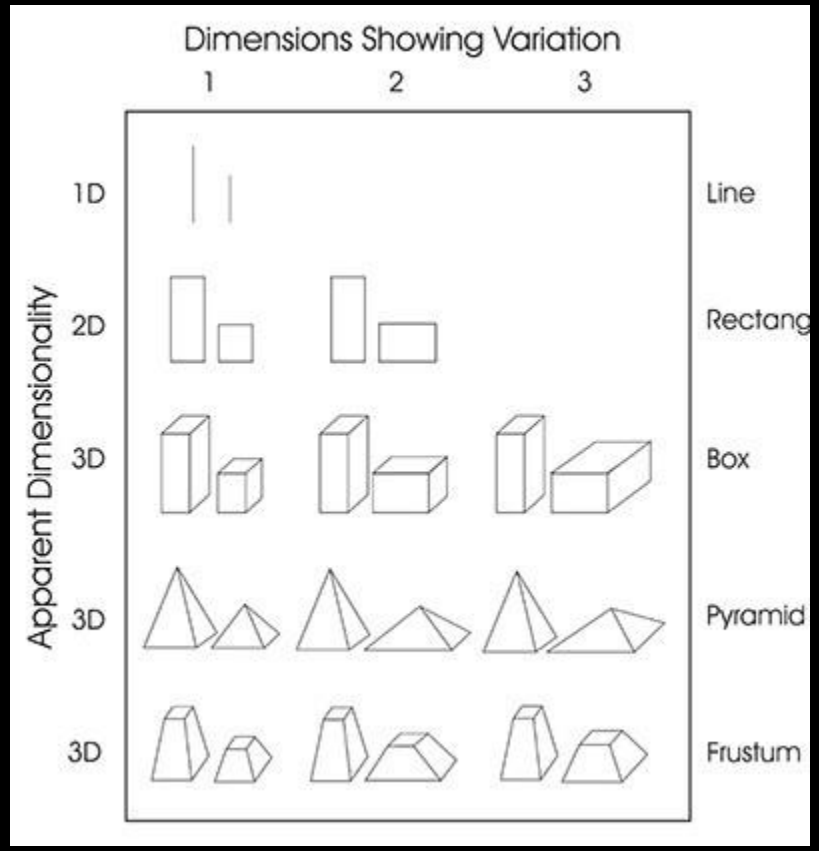

C
B
A


C
B
A


100
0
A
B
C


100
0
A
B
C


1: scatterplot
2: area bar
3: 3-D volume bar
4: 3-D volume bar
5: area line
6: simple line
7: 3-D volume line
8: 3-D surface line
9: 3-D volume pie
1: scatterplot
2: simple line
3: area line
4: 3-D volume line
5: 3-D surface line
6: simple bar
7: area bar
8: 3-D volume bar
9: 3-D surface bar


Dimensions Showing Variation
1
2
3
Apparent Dimensionality
1D
2D
3D
3D
3D
Line
Rectang
Box
Pyramid
Frustum

point cloud size

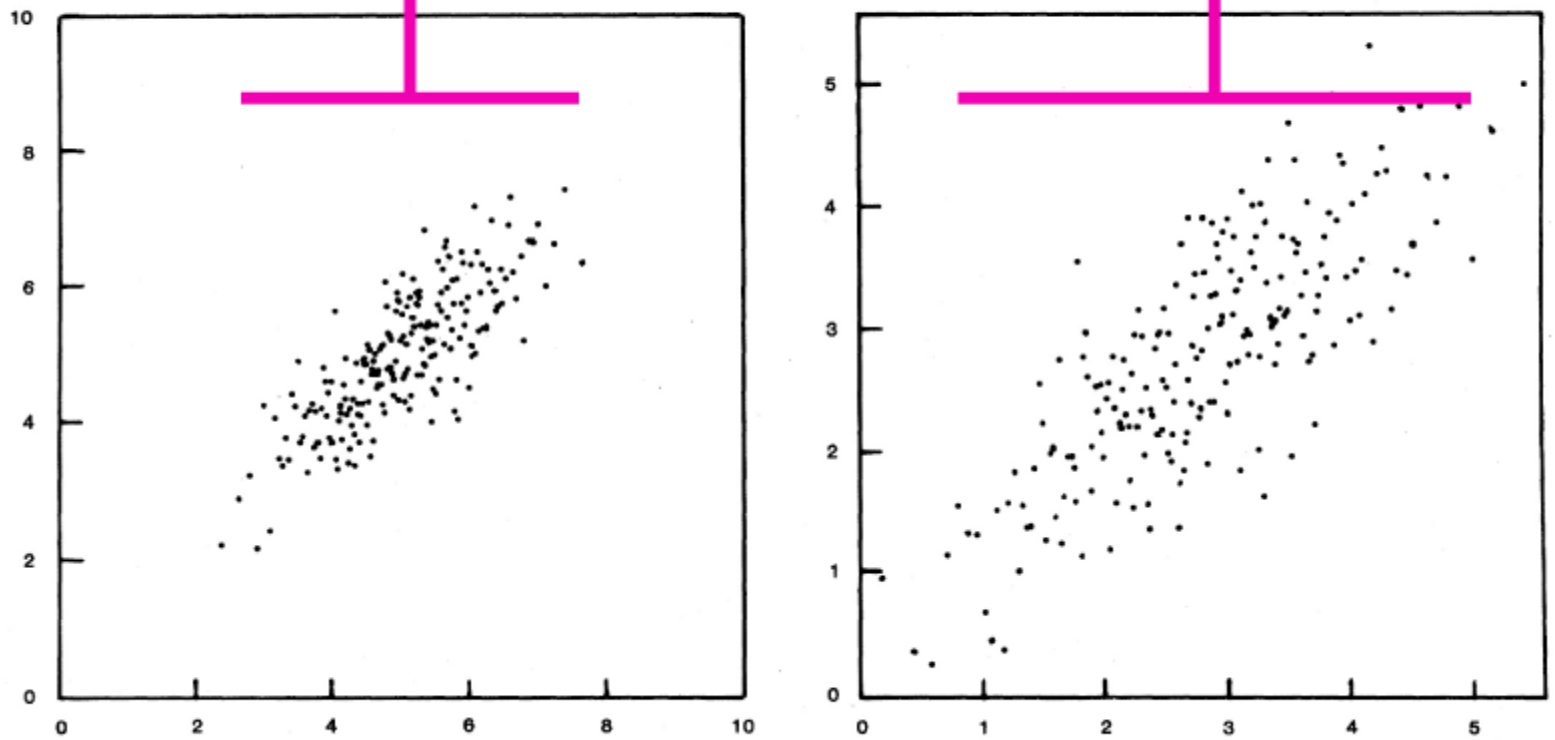
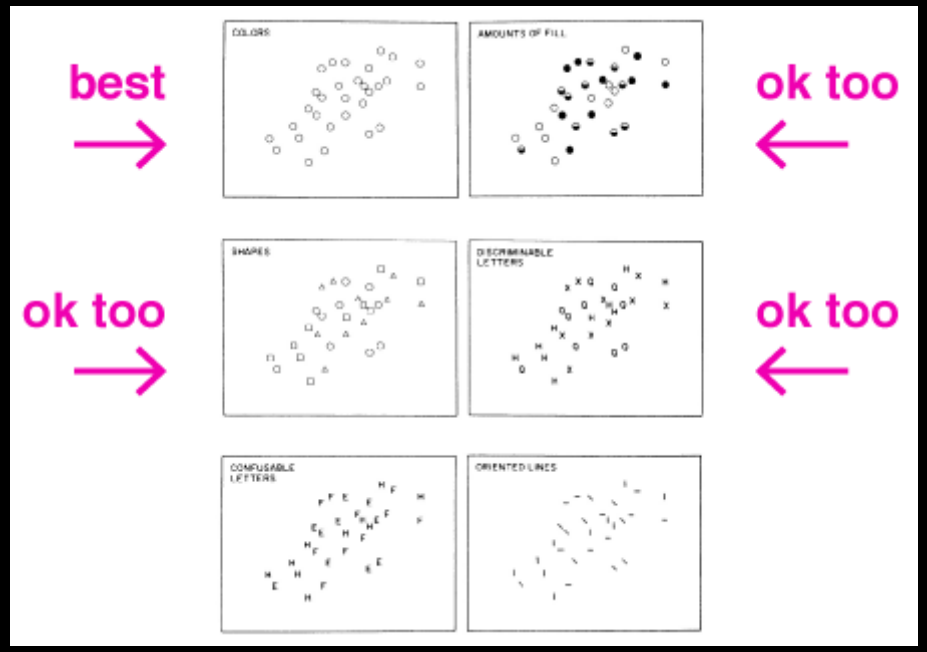
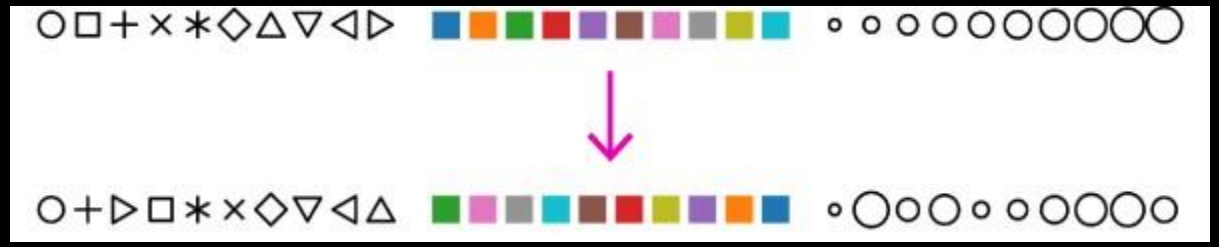


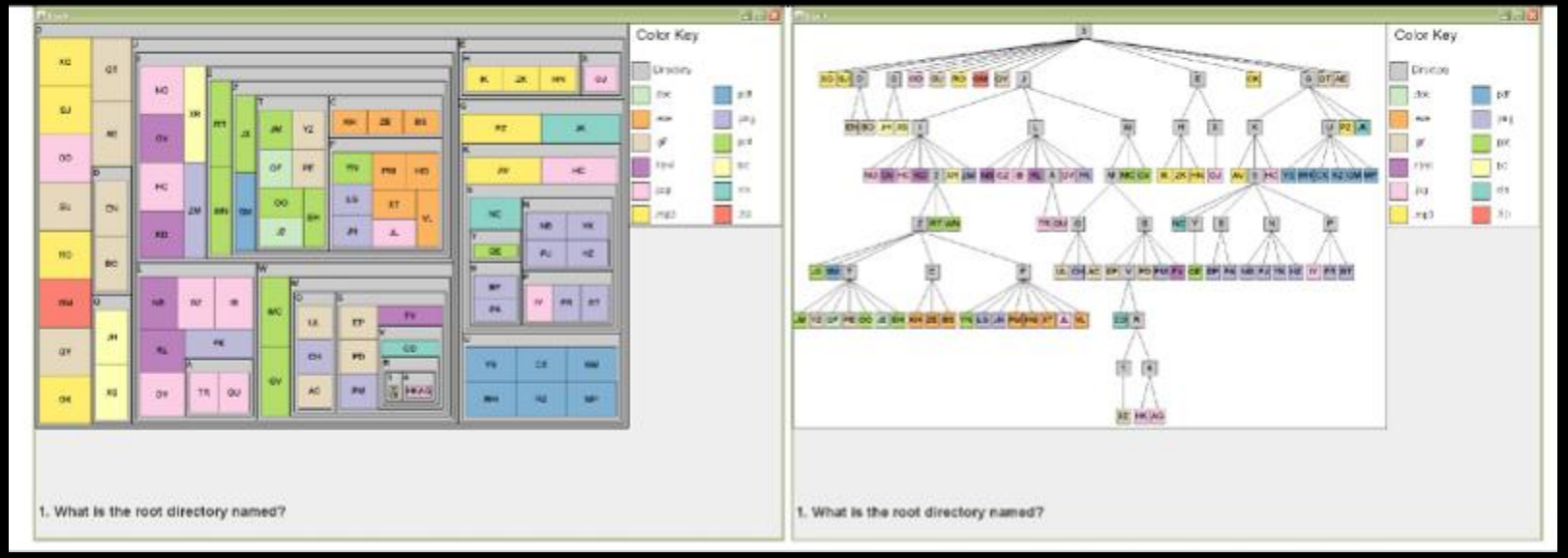
Fig. 1. Reductions of two scatterplots used in the three types of experiments. The left panel is point-cloud size 2 and the right panel is point-cloud size 4. In both panels $w(r) = .4$ and $r = .8$.

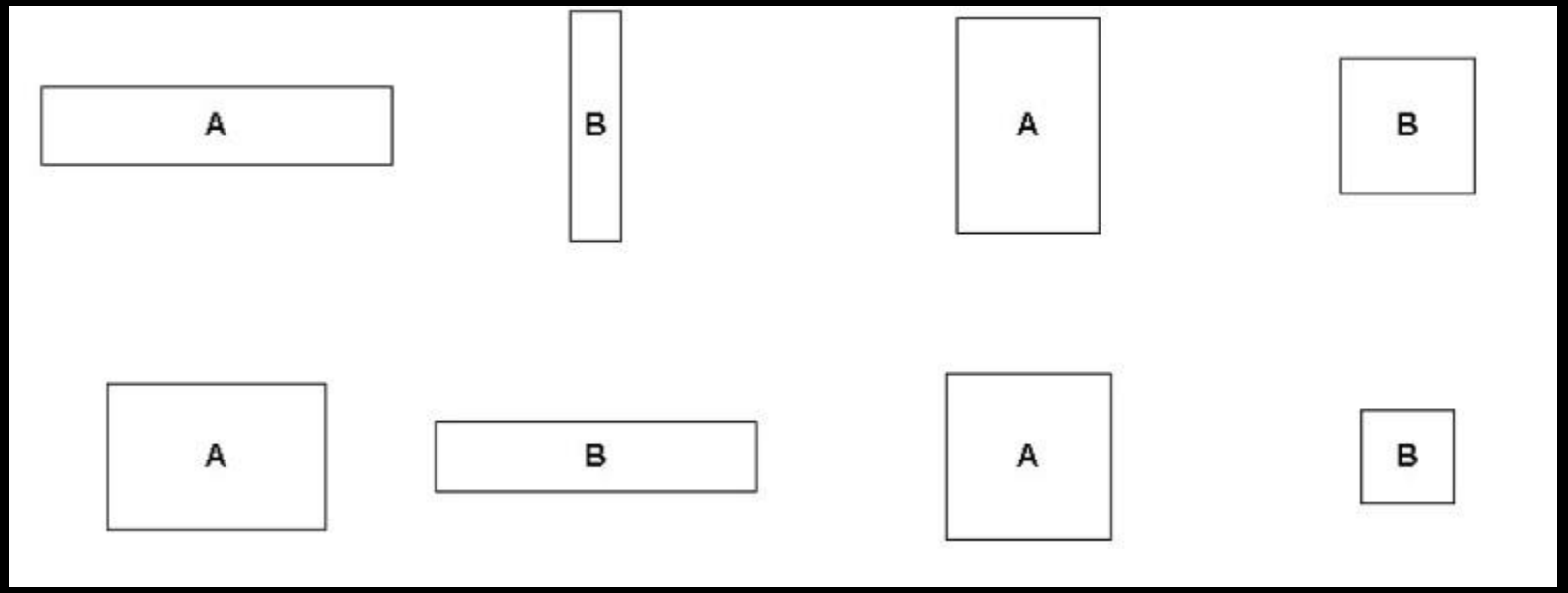

best
COLORS
AMOUNTS OF FILL
ok too
ok too
SHAPES
DISCRIMINABLE LETTERS
ok too
CONFUSABLE LETTERS
ORIENTED LINES

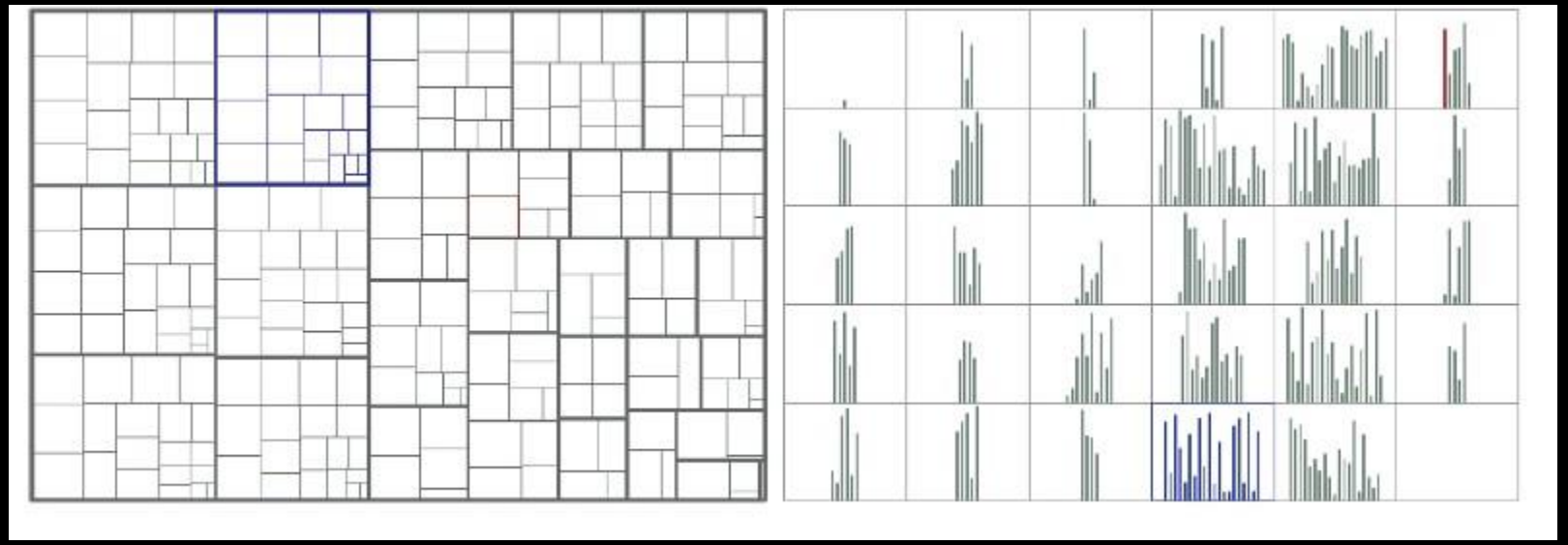


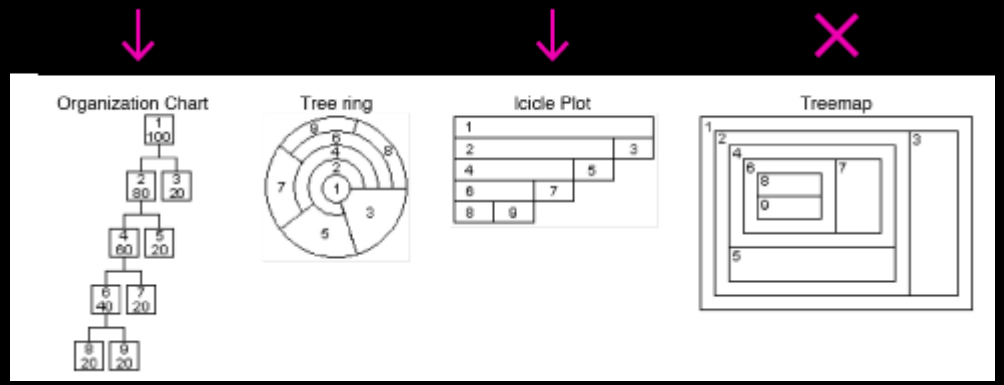
container-like

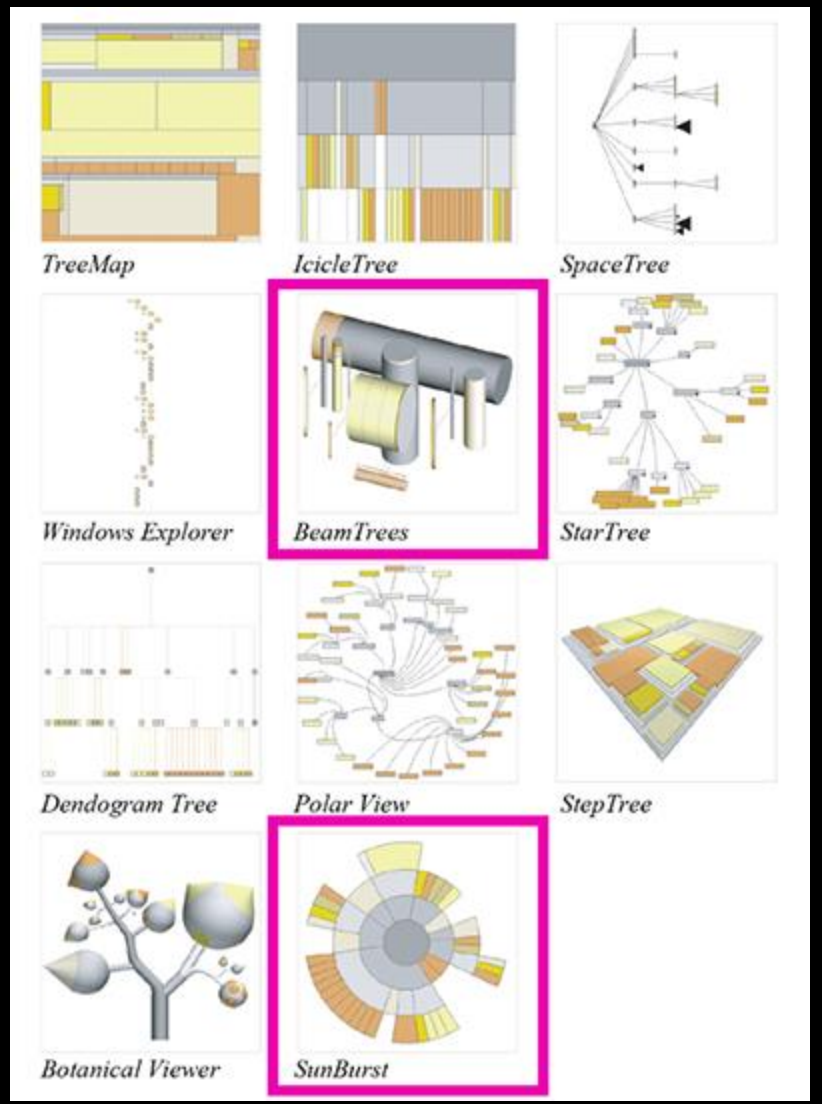
cascading

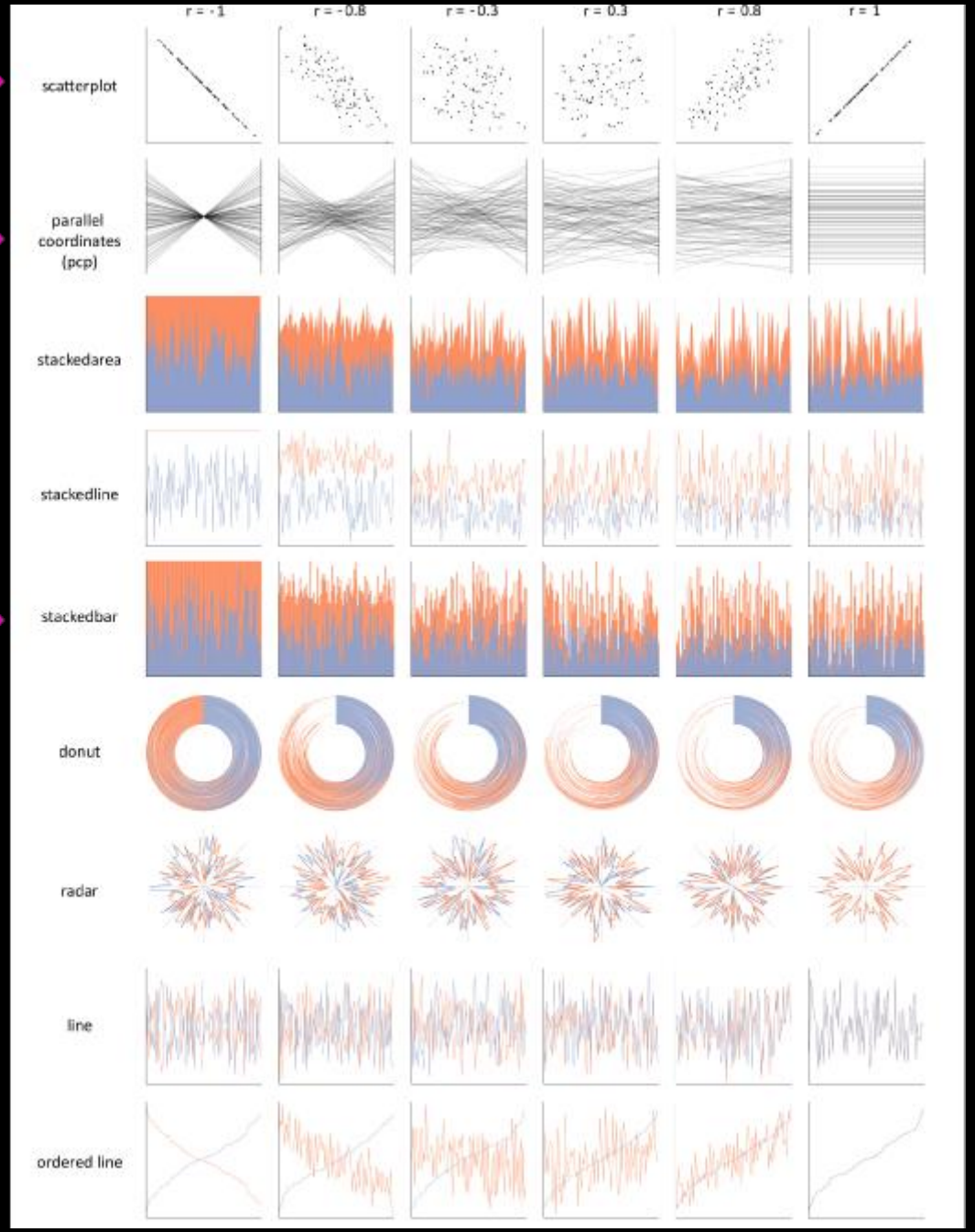



A
B
A
B
A
B
A
B




Organization Chart
Tree ring
Icicle Plot
Treemap


TreeMap
IcicleTree
SpaceTree
Windows Explorer
BeamTrees
StarTree
Dendogram Tree
Polar View
StepTree
Botanical Viewer
SunBurst


r = -1
r = -0.8
r = -0.3
r = 0.3
r = 0.8
r = 1
scatterplot
parallel coordinates (pcp)
stackedarea
stackedline
stackedbar
donut
radar
line
ordered line

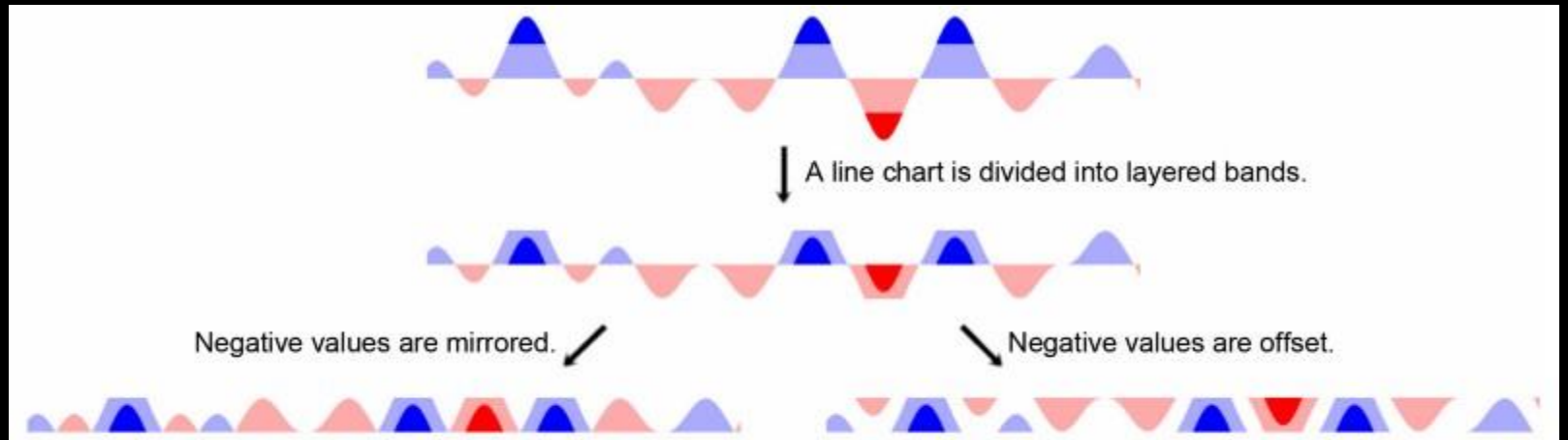


Figure 2. Horizon graph construction. A normal line chart is divided into bands defined by uniform value ranges. The bands are then layered to reduce the chart height. Negative values can be mirrored or offset into the same space as positive values.

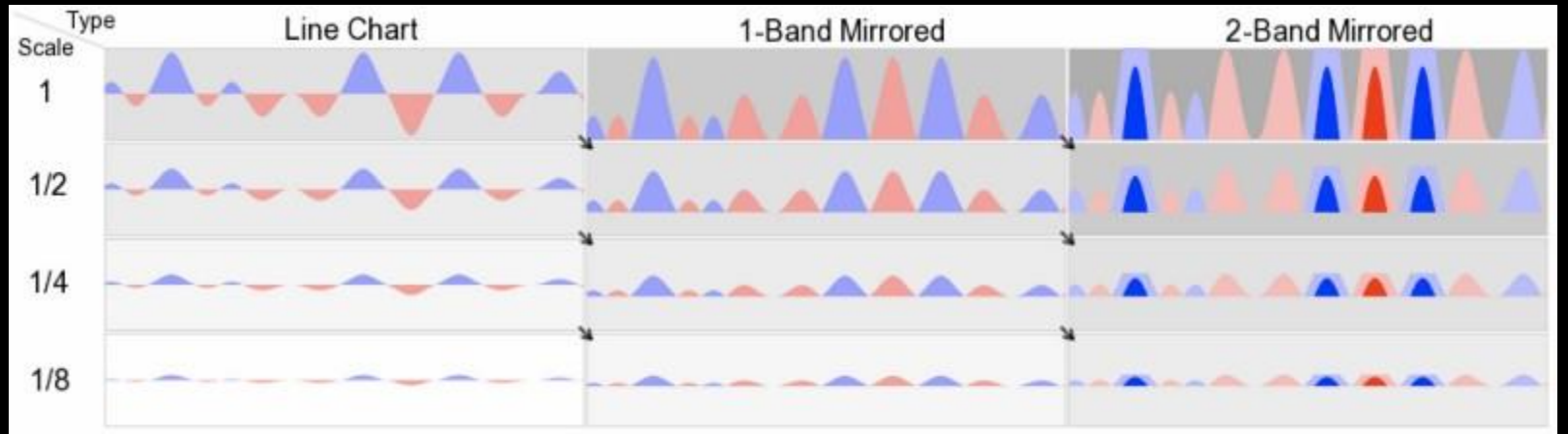
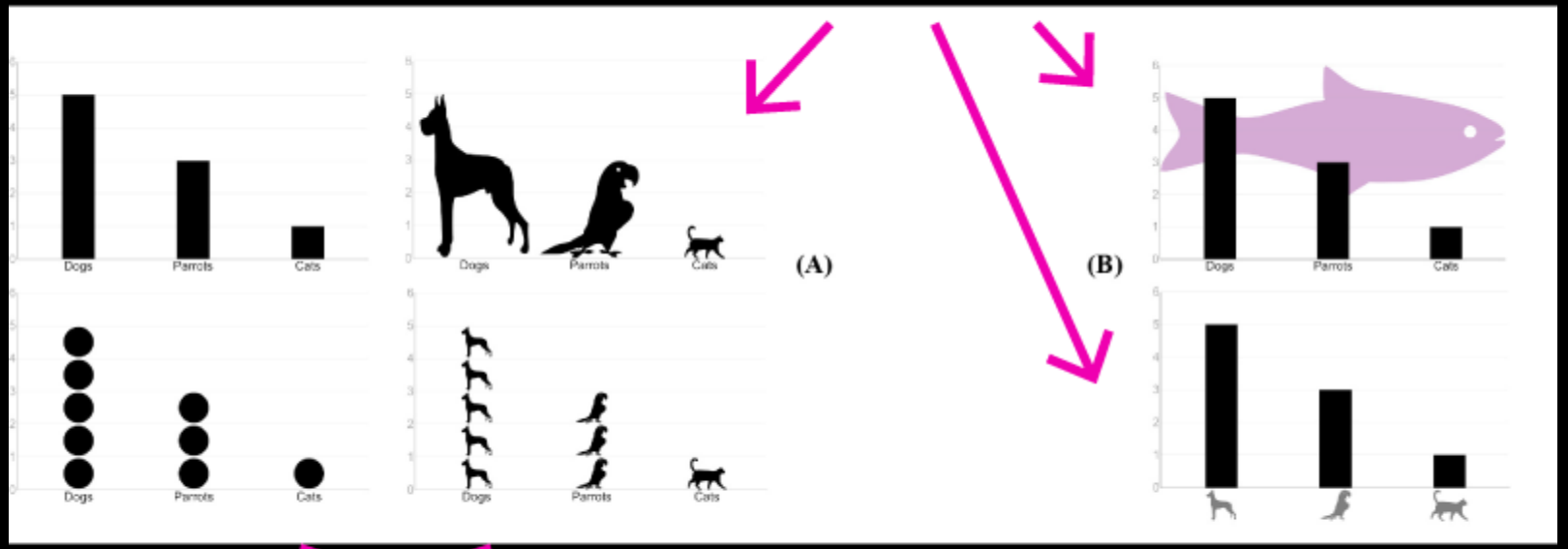
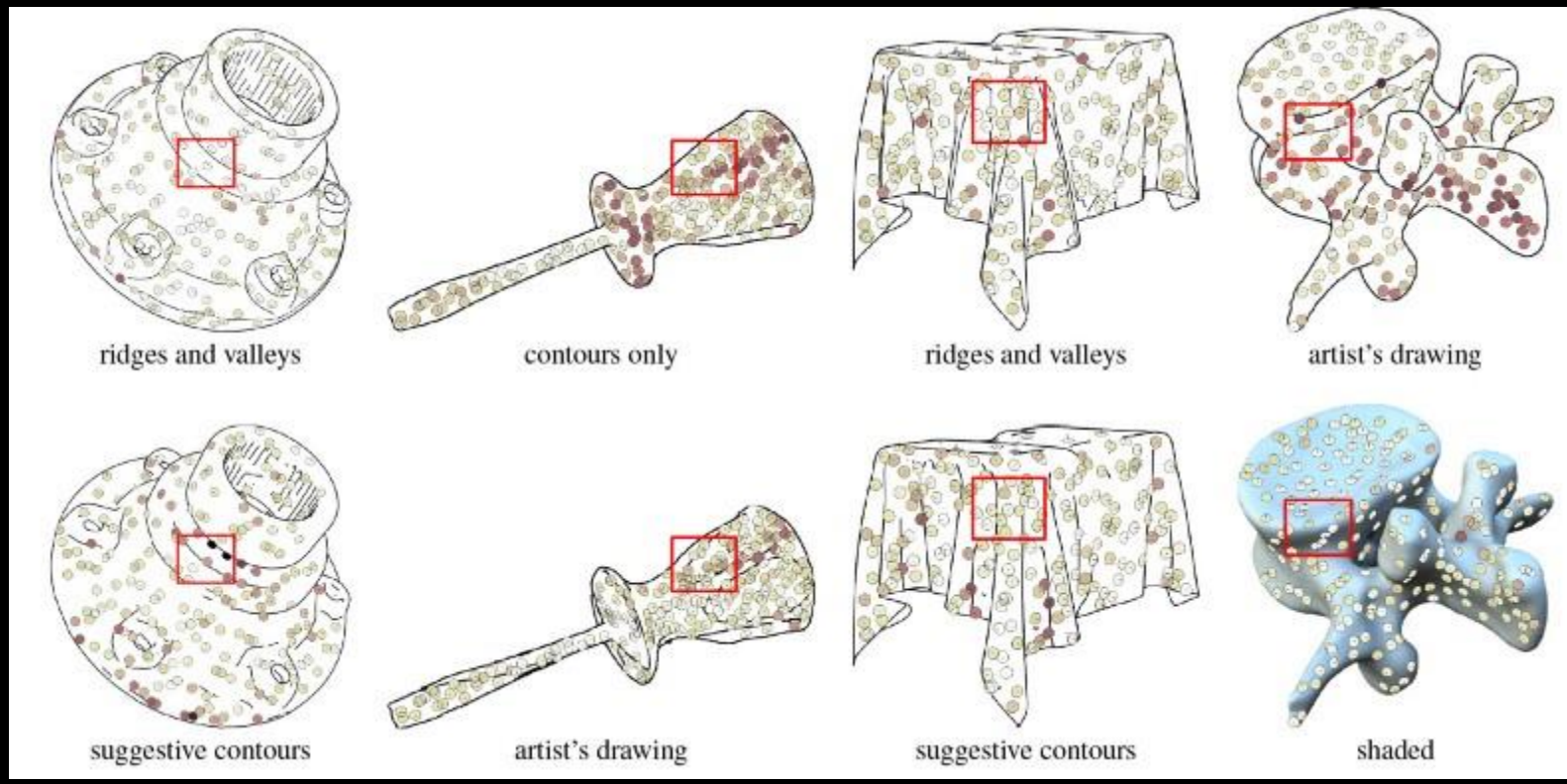


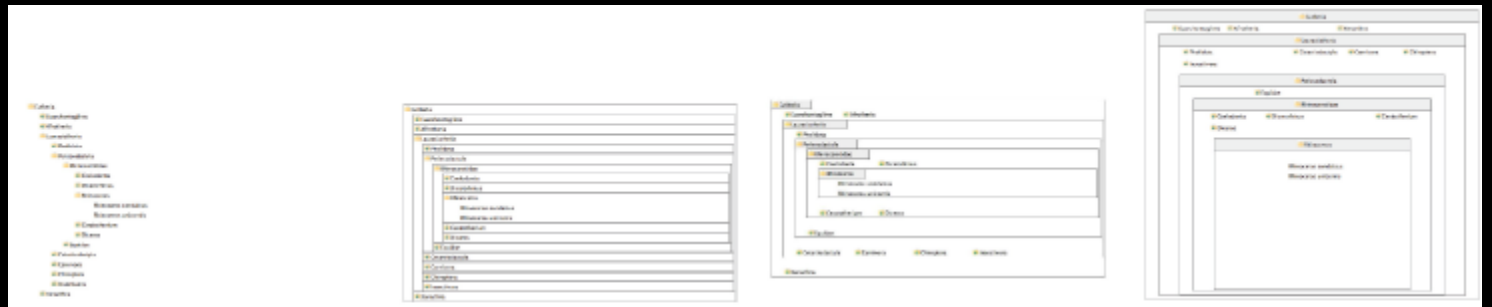
Figure 7. Chart Type and Scale Conditions in Experiment 2. We crossed 3 chart types and 4 chart heights. The diagonally adjacent cells indicated by arrows and shading have the same *virtual resolution*: the un-mirrored, un-layered size of the chart.

not this



do this


ridges and valleys
contours only
ridges and valleys
artist's drawing
suggestive contours
artist's drawing
suggestive contours
shaded



(a) V1: Basic Tree

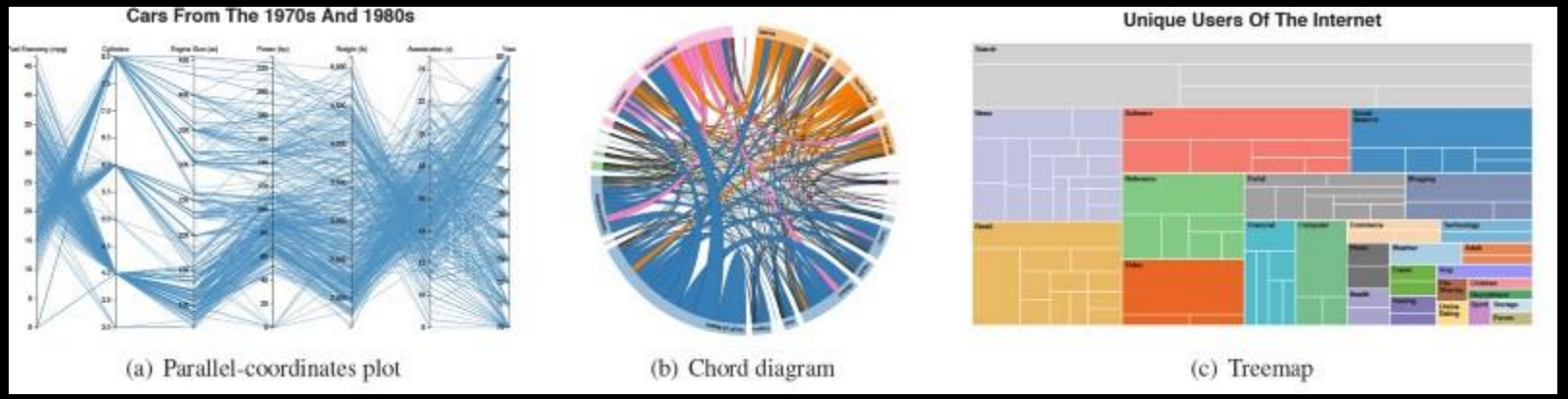
(b) V2: Bordered Tree

(c) V3: Indented Boxes

(d) V4: Nested Boxes

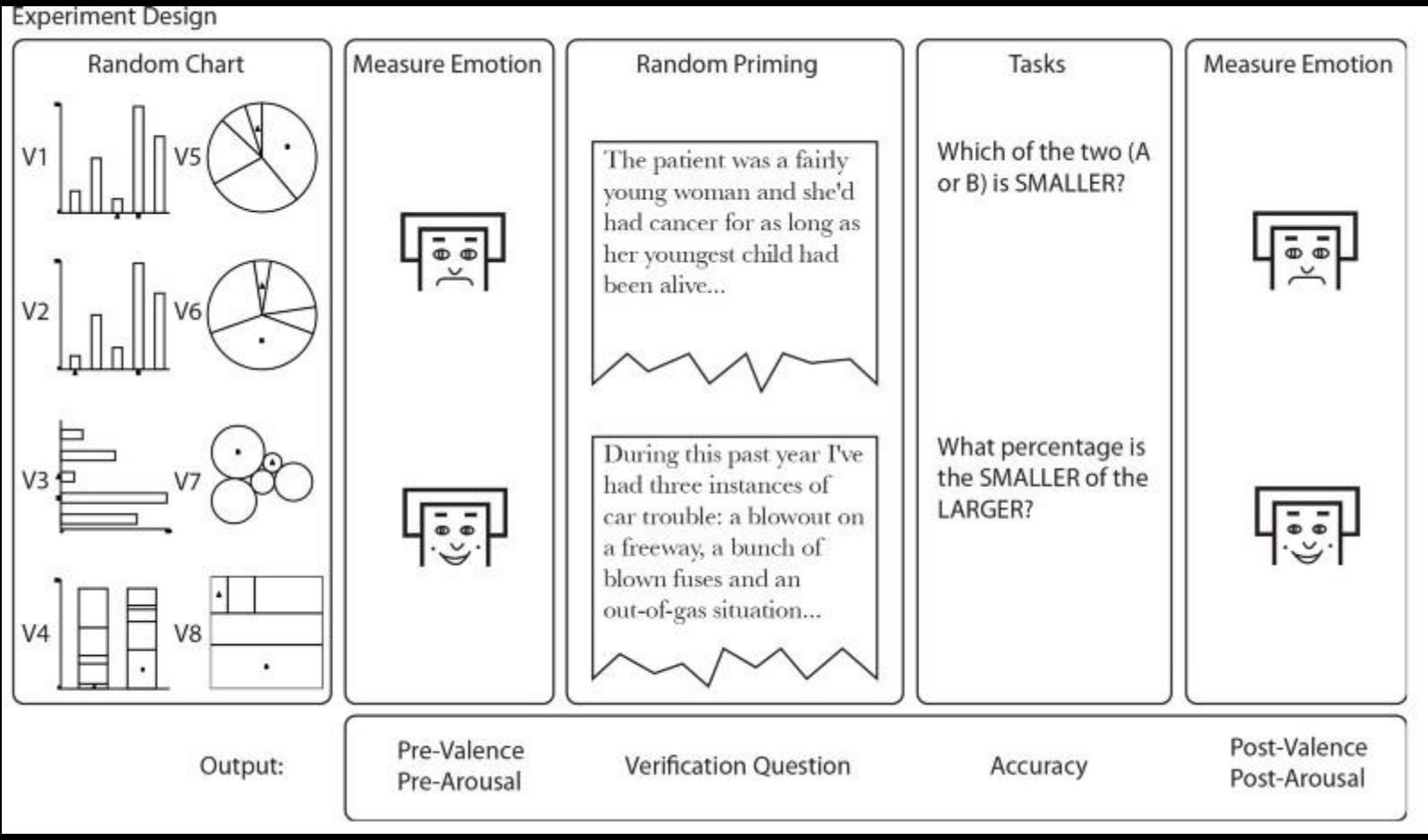
list-like ←

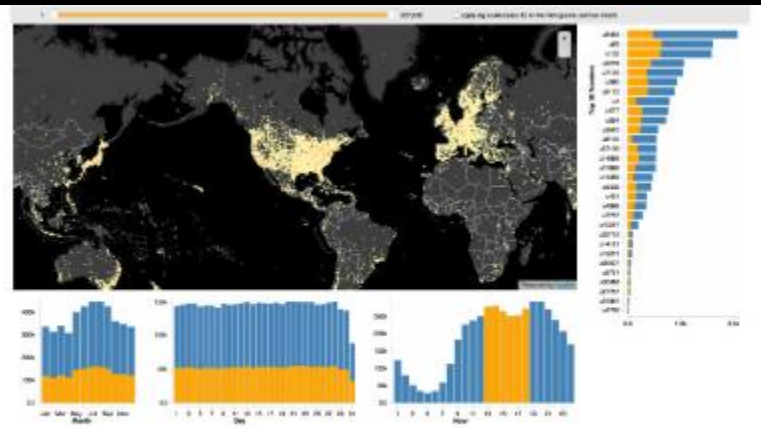
→ **container-like**



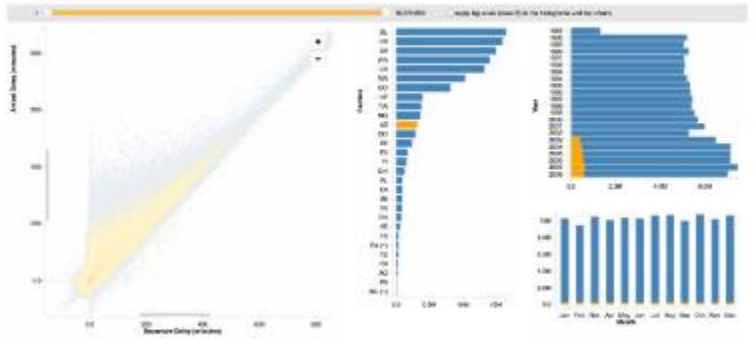
(a) Parallel-coordinates plot (b) Chord diagram (c) Treemap

Experiment Design





(a) Five coordinated visualizations showing geographical and temporal distribution of user checkins and top users.



(b) Four linked visualizations showing departure and arrival delays, carriers, yearly and monthly distribution of flights.

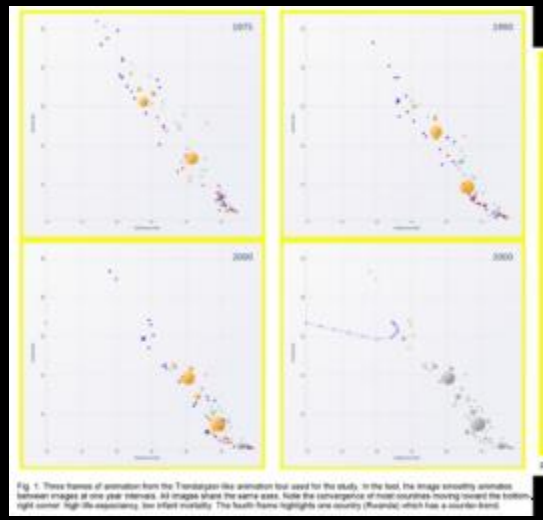


Fig. 1. Three frames of animation from the Trendalyzer-like animation tool used for this study. In the tool, the image smoothly animates between images at one year intervals. All images share the same axes. Note the convergence of most countries moving toward the bottom right corner: high life expectancy, low infant mortality. The fourth frame highlights one country (Rwanda) which has a counter-trend.

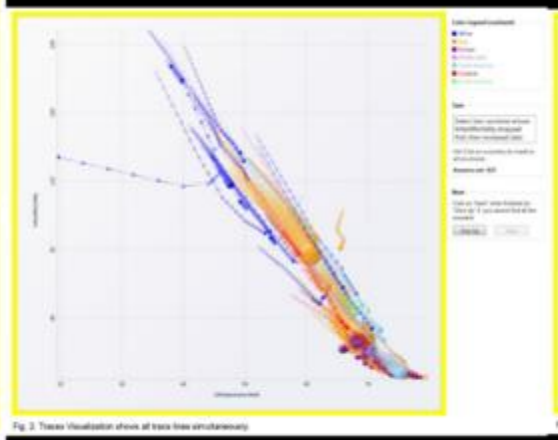


Fig. 2. Traces Visualization shows all trace lines simultaneously.

Fig. 3. Small Multiples Visualization shows trace lines for each country separately.

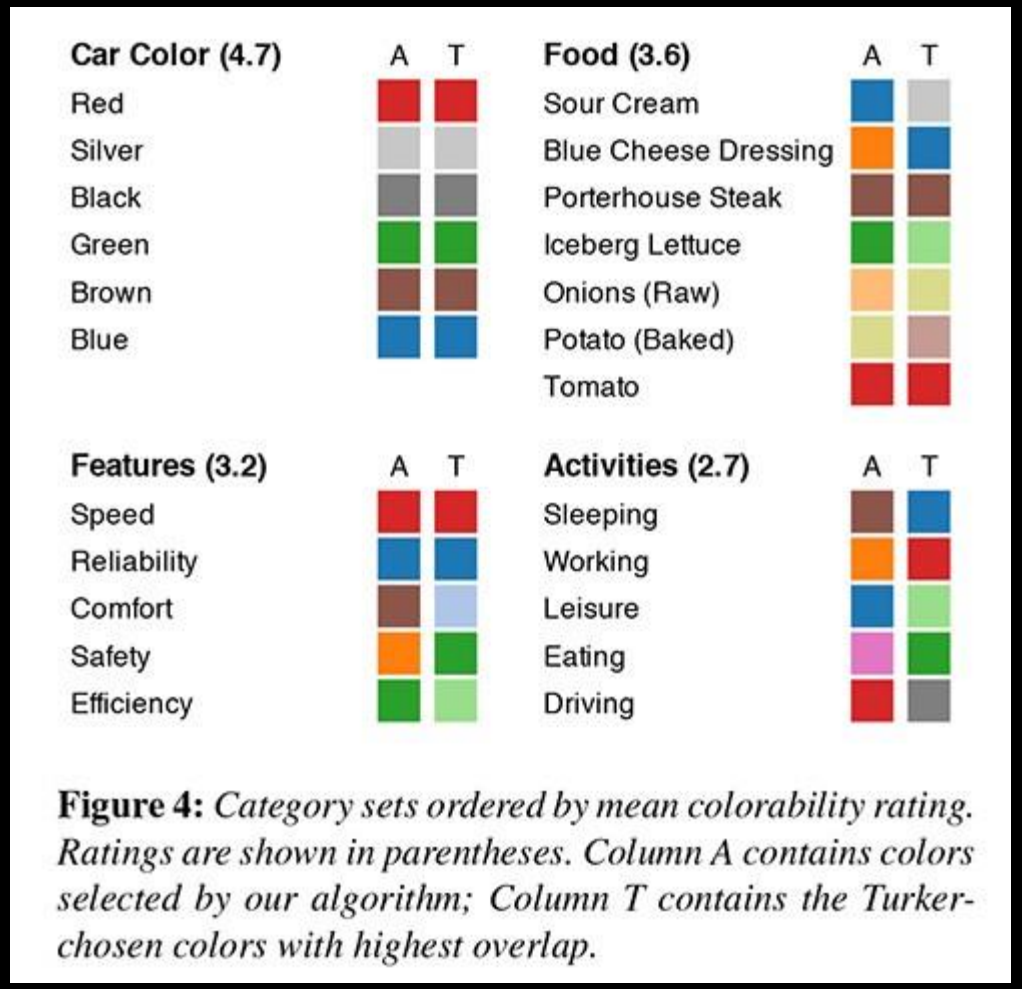


Figure 4: *Category sets ordered by mean colorability rating. Ratings are shown in parentheses. Column A contains colors selected by our algorithm; Column T contains the Turker-chosen colors with highest overlap.*

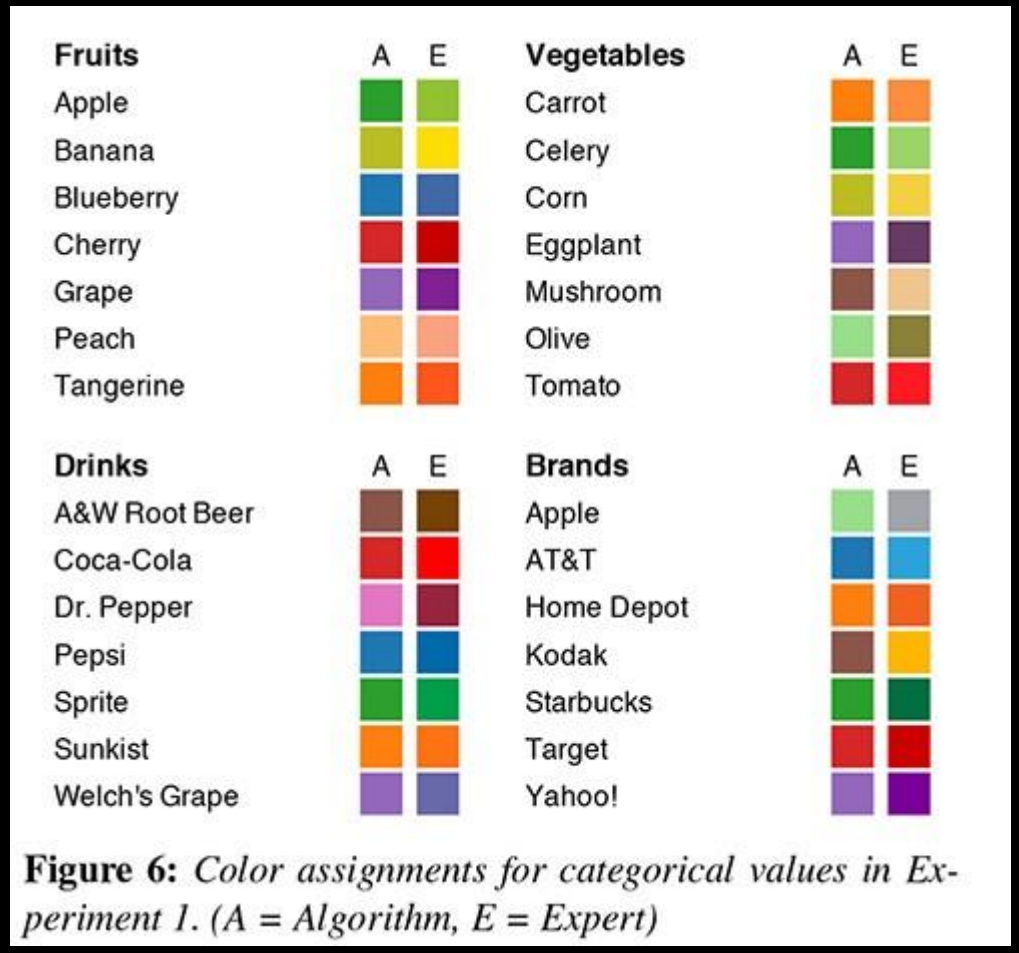


Figure 6: *Color assignments for categorical values in Experiment 1. (A = Algorithm, E = Expert)*