

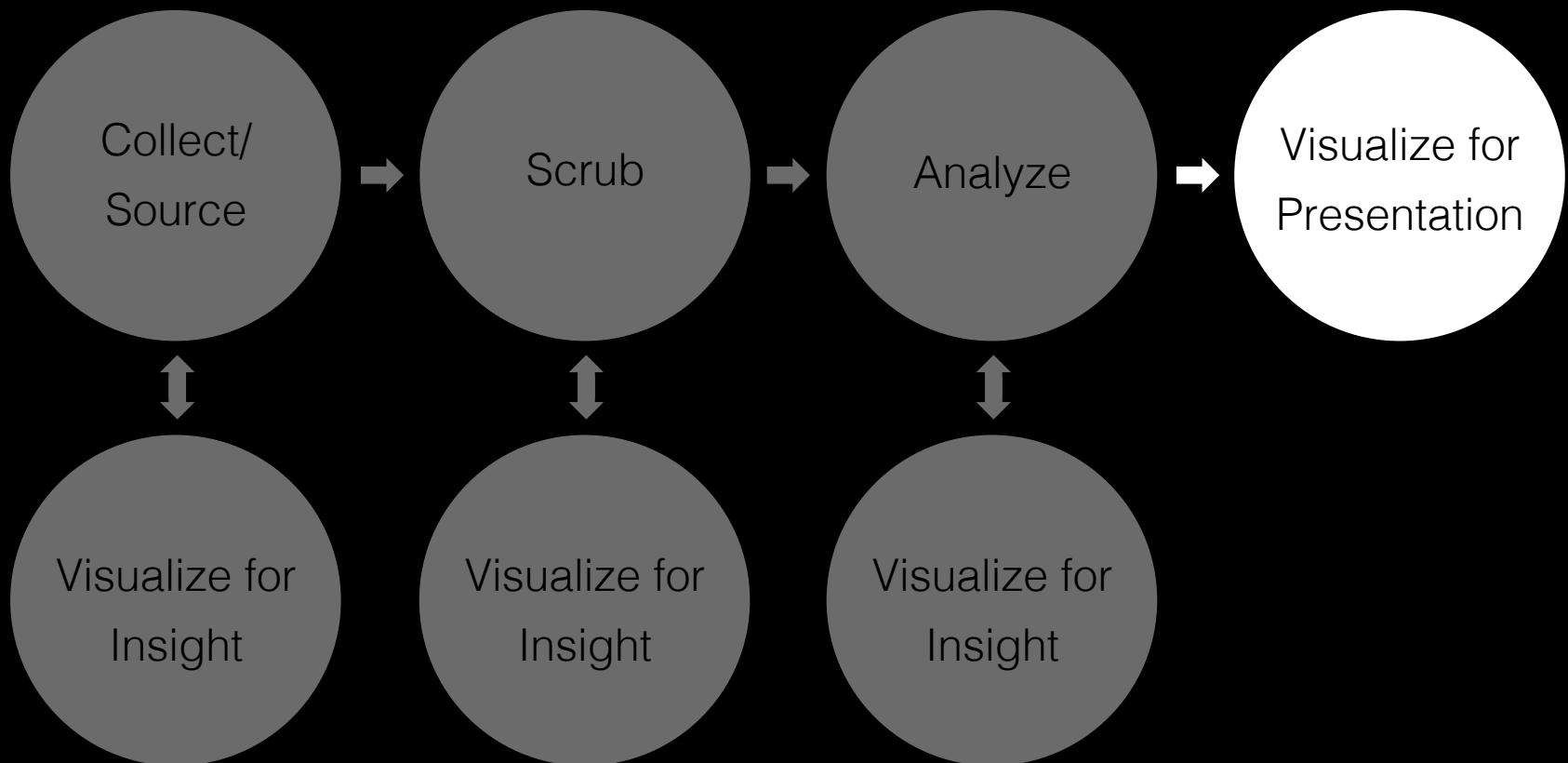
# Interactive Data Visualization

Danne Woo and Peter Darche

danne@dannewoo.com  
@dannewoo  
www.dannewoo.com

pdarche@gmail.com  
@pdarche  
www.peterdarche.com

# Data Pipeline



# Perceiving Values

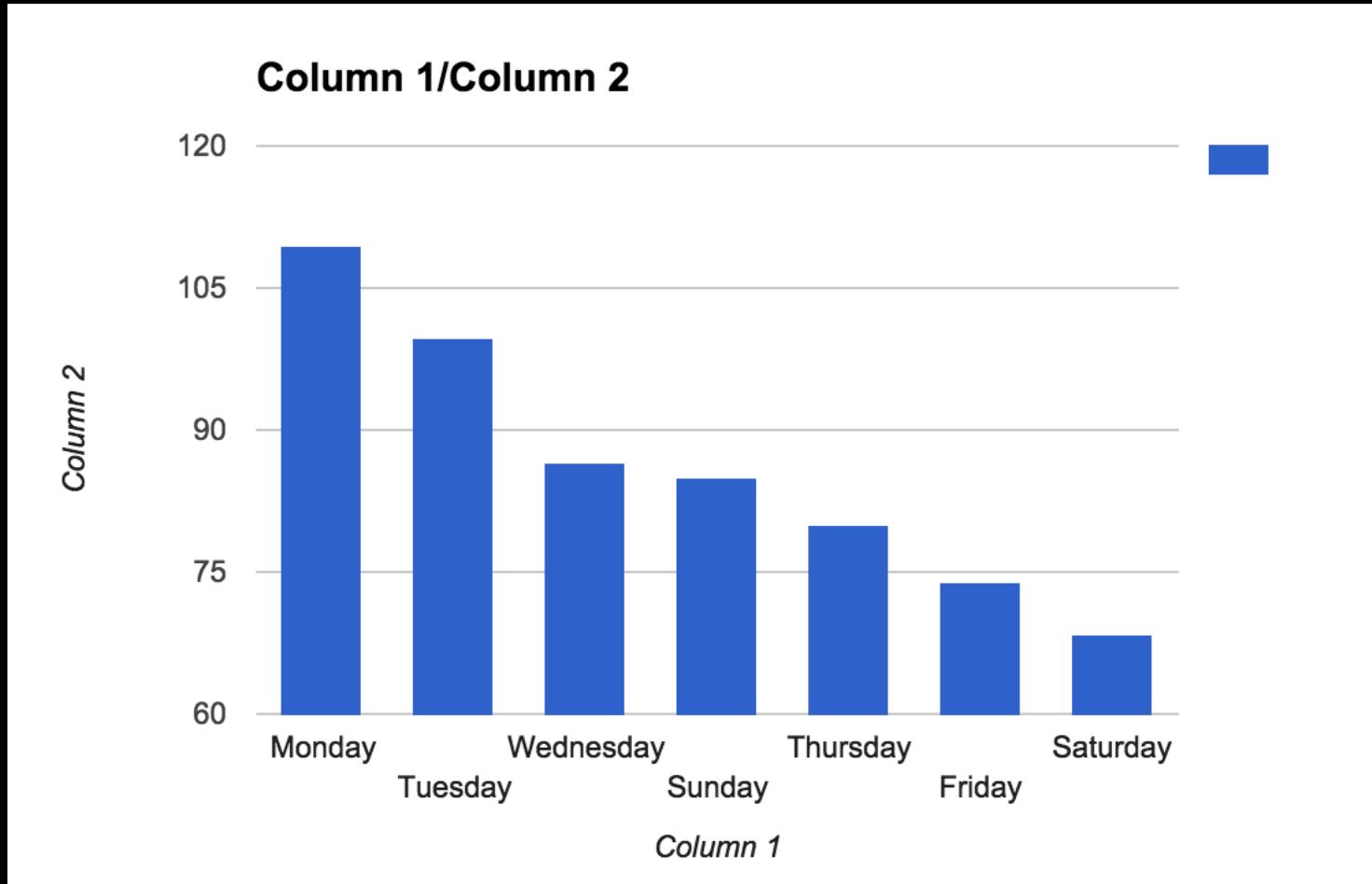


**18 x 24 = ?**

# Perceiving Values

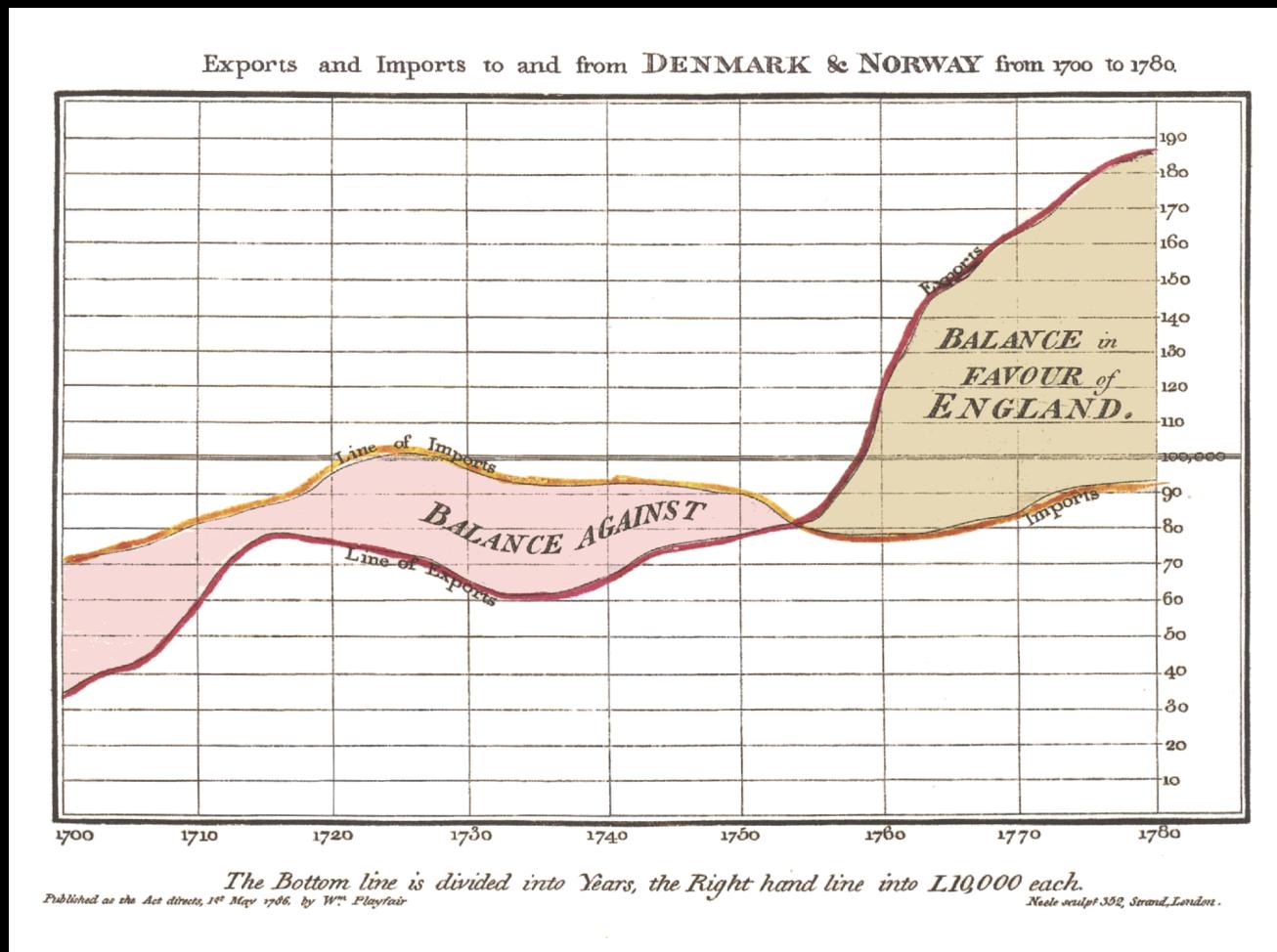
4	7	0	<b>3</b>	6	9	2
5	8	1	4	7	0	<b>3</b>
6	9	2	5	8	1	4
7	0	<b>3</b>	6	9	2	5
8	1	4	7	0	<b>3</b>	6
9	2	5	8	1	4	7
0	<b>3</b>	6	9	2	5	8

# Perceiving Values



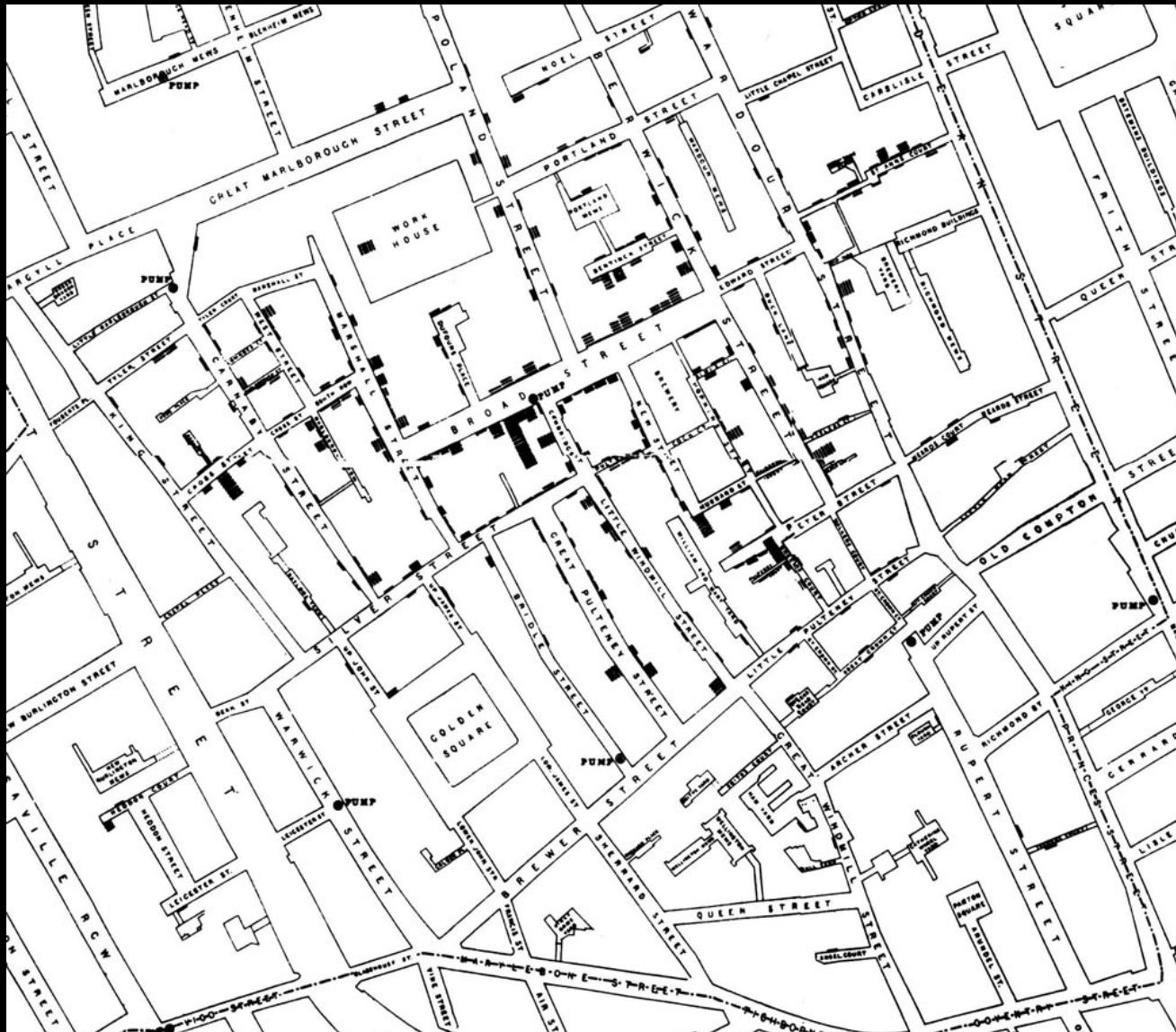
# Perceiving Values

William Playfair, 1786



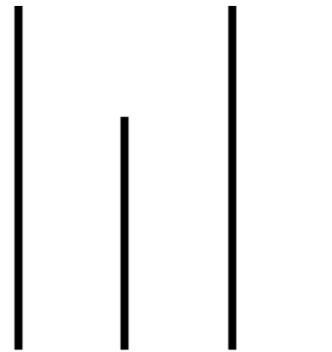
# Perceiving Values

John Snow, 1854

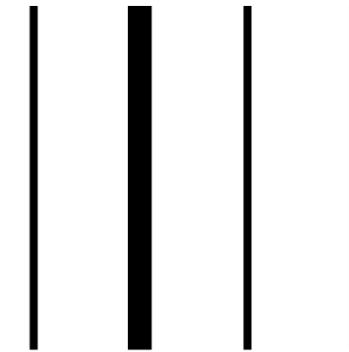


# Perceiving Values

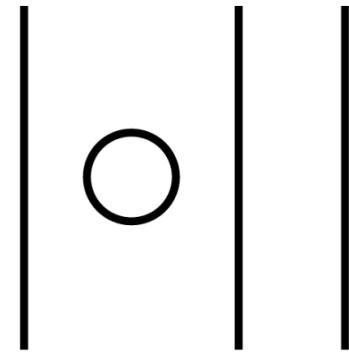
LENGTH (PRECISE)



WIDTH (NOT VERY PRECISE)



SHAPE (NONE)

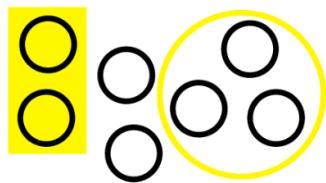


# Perceiving Values

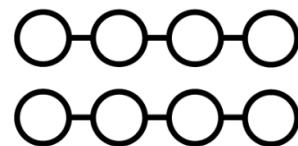


# Perceiving Values

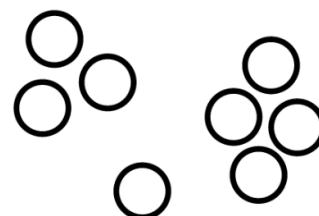
ENCLOSURE



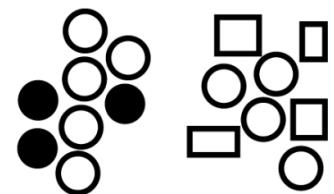
CONNECTION



PROXIMITY



SIMILARITY



# Perceiving Values

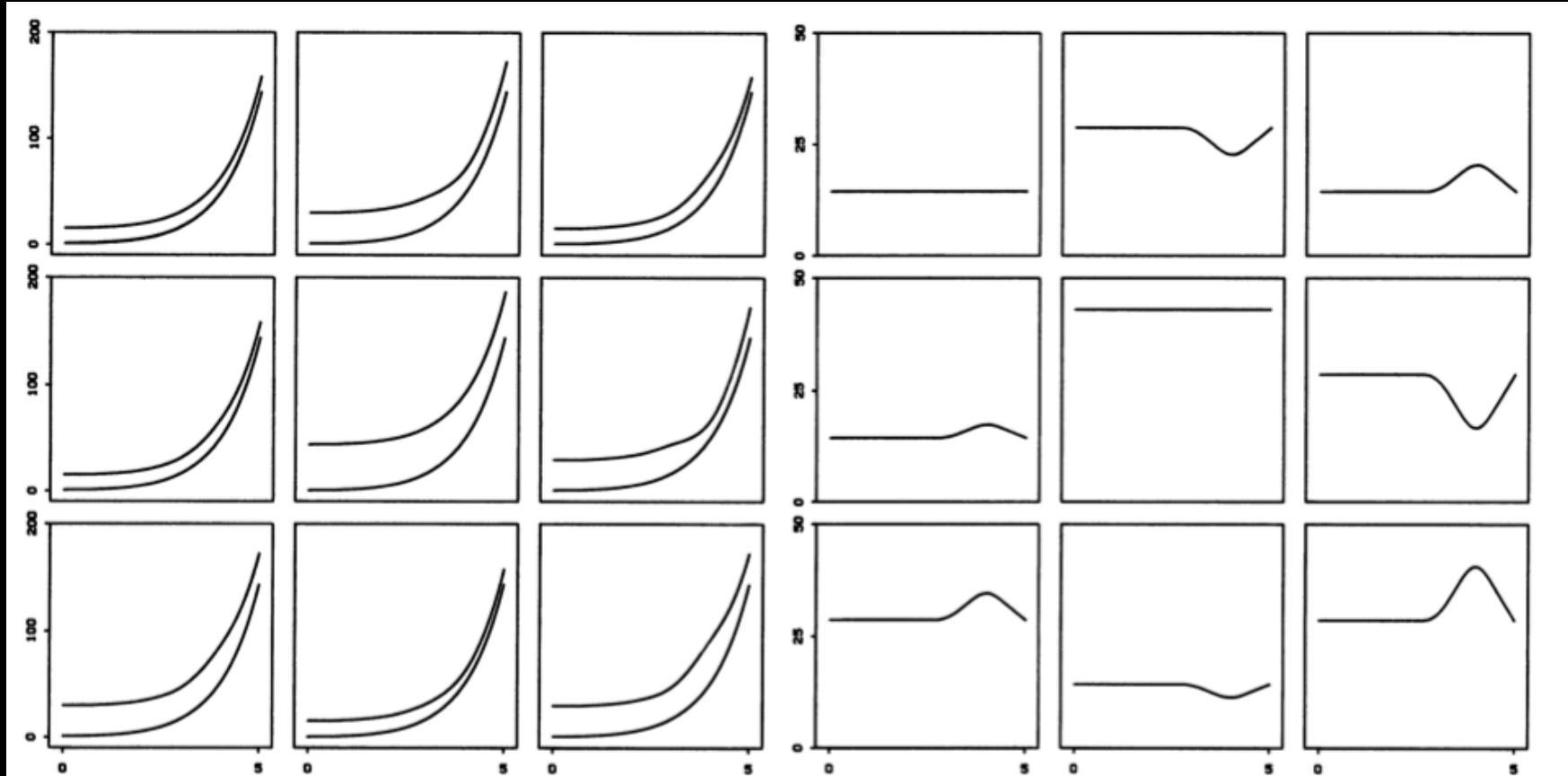


Figure 26. Curve-difference chart.

Figure 27. Curve differences.

# Perceiving Values

More accurate comparisons



2D position along common, aligned scale



2D position along common, but unaligned scale



Length



Slope



Angle

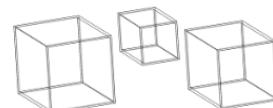


Area



Colour intensity

More generic comparisons

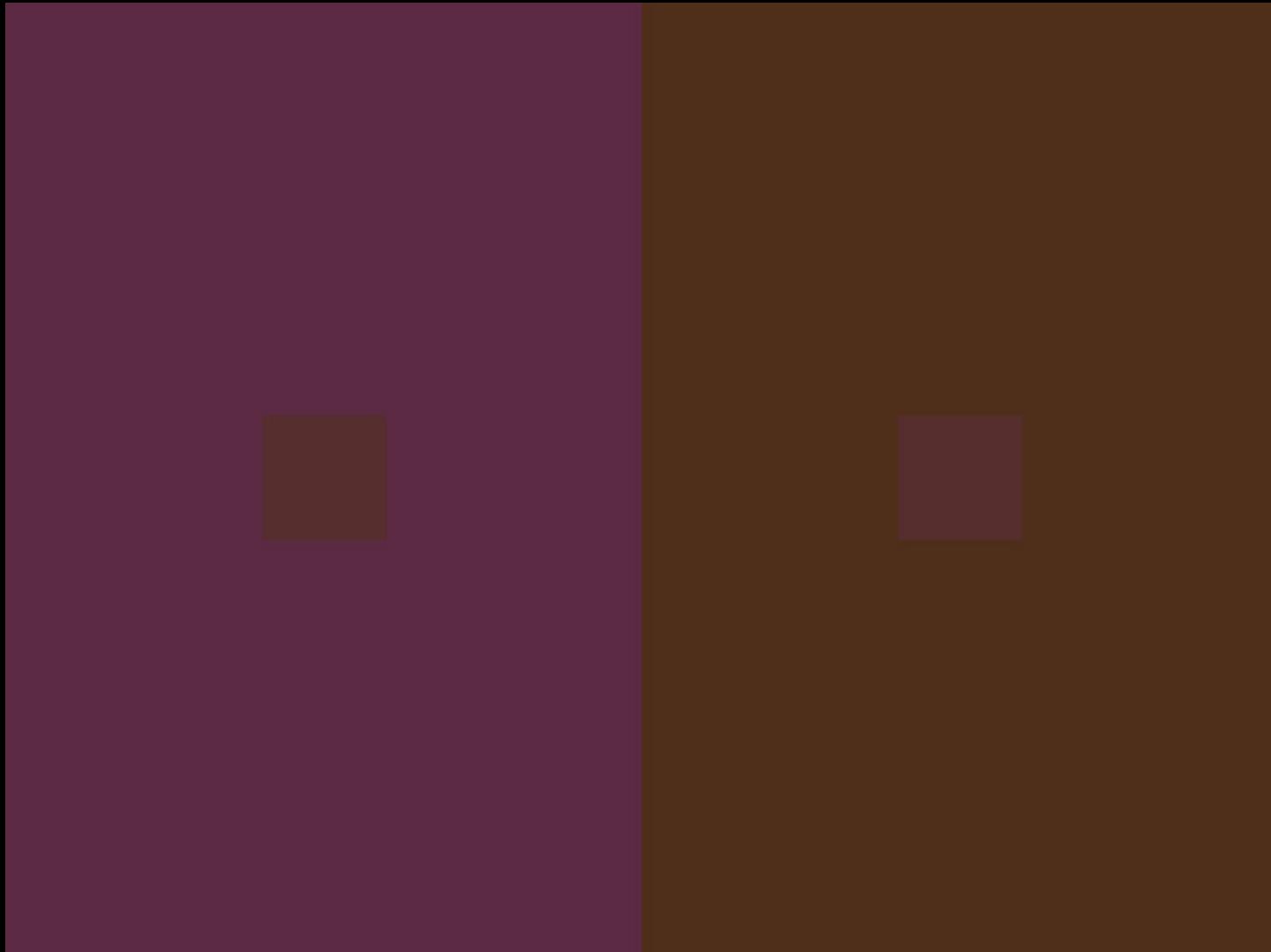


Volume



Colour hue

# Perceiving Values



# Perceiving Values



# Perceiving Values



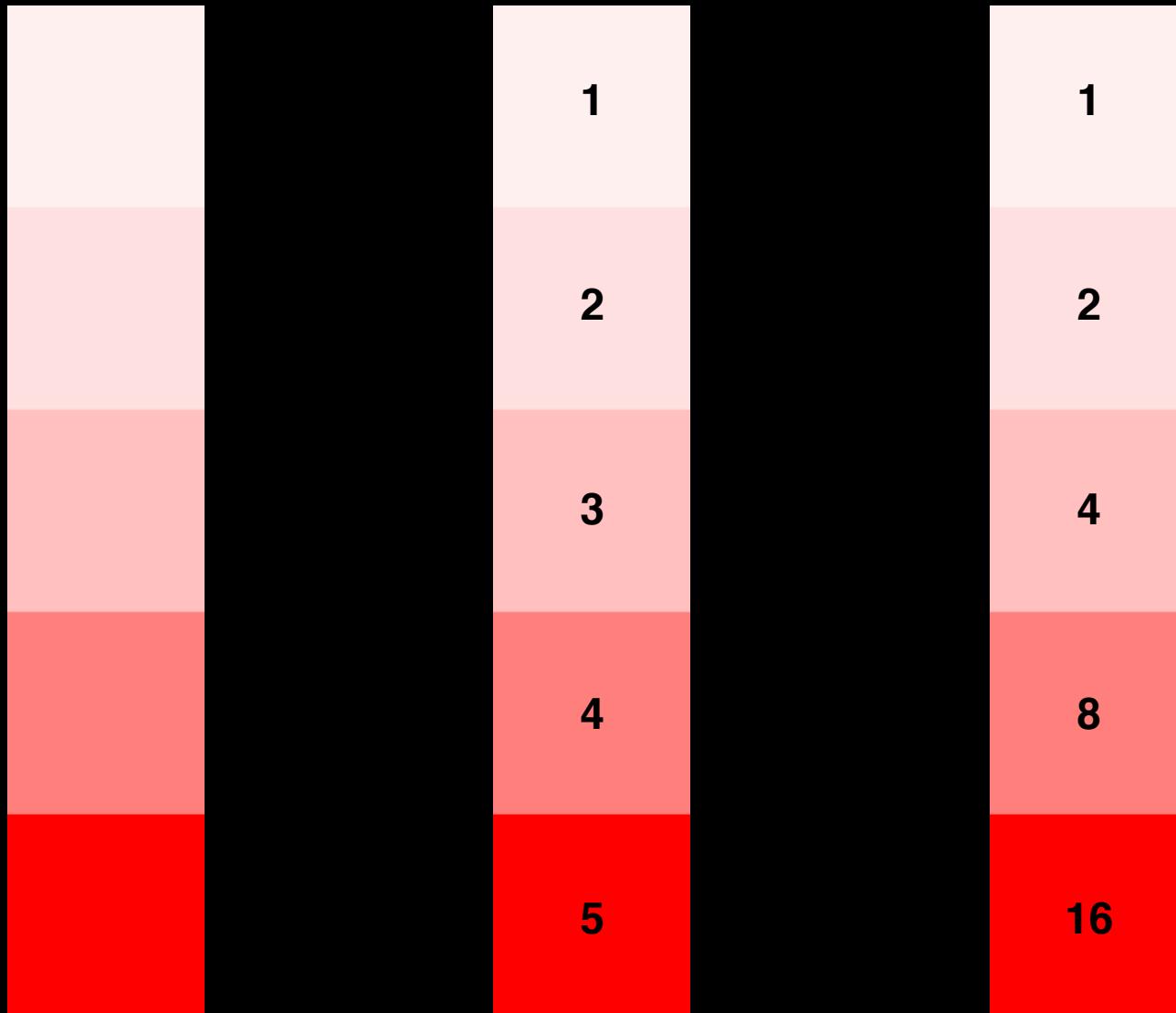
# Perceiving Values



# Perceiving Values



# Perceiving Values



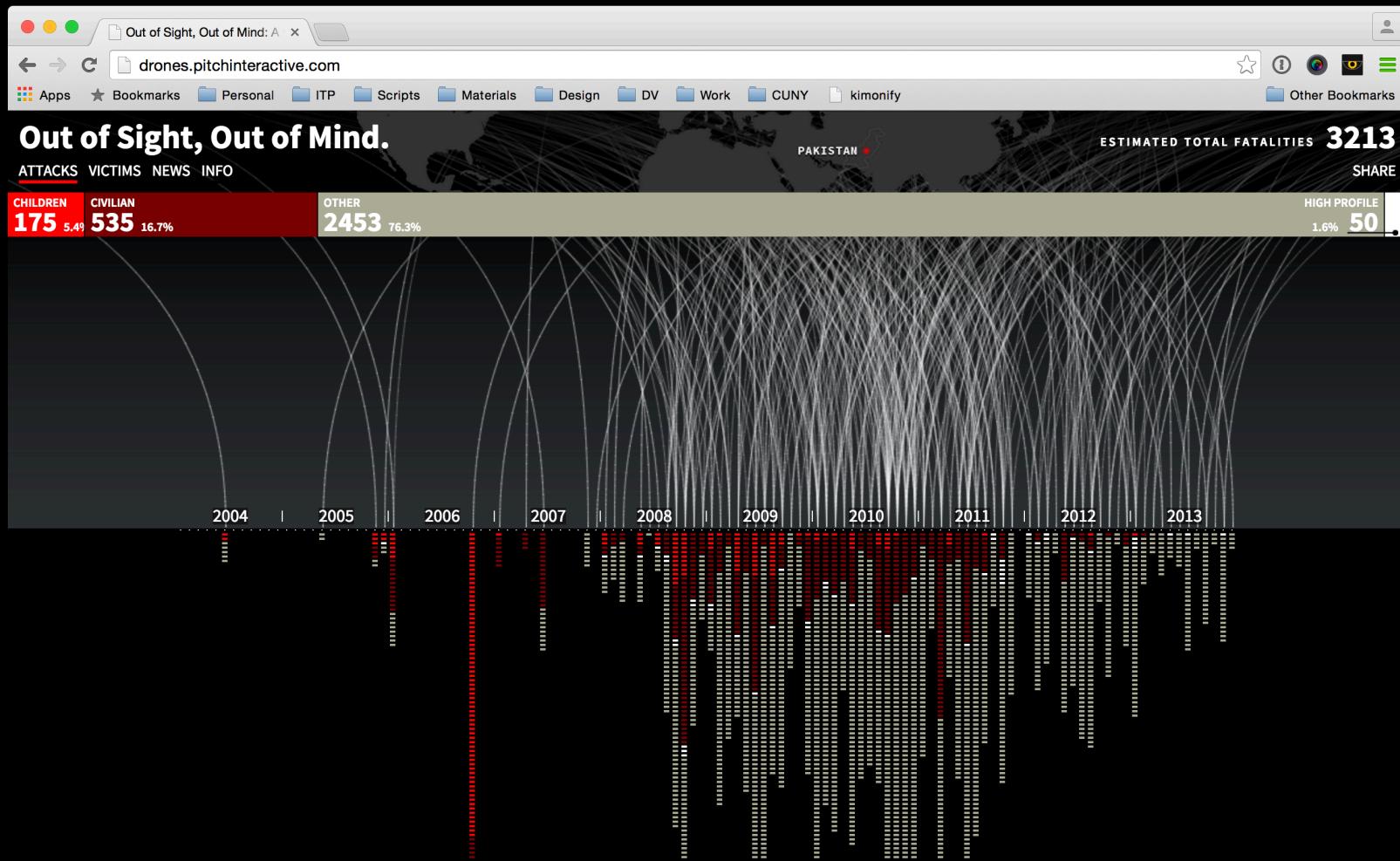
# Perceiving Values



# Perceiving Values

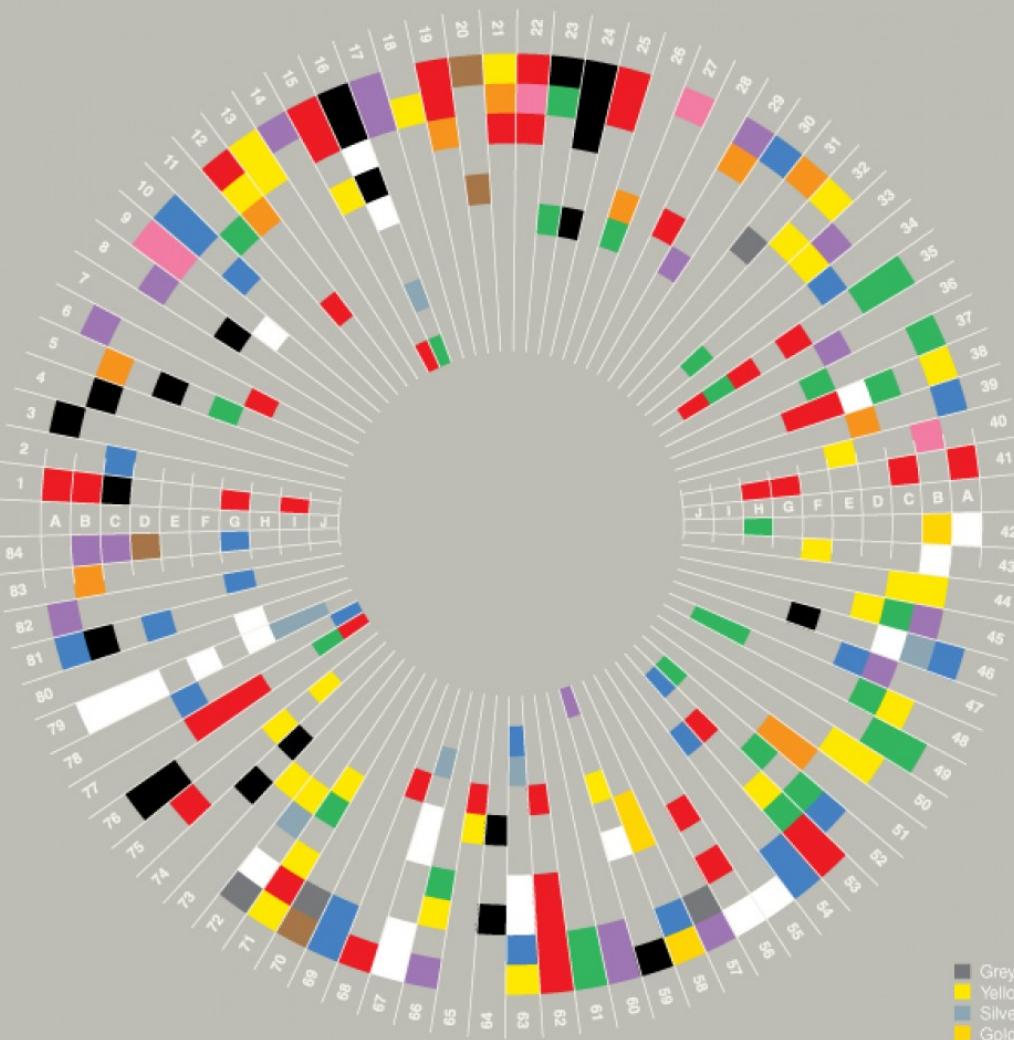
<b>BLACK</b> sophistication power mystery formality evil death	<b>GRAY</b> stability security strength of character authority maturity	<b>PURPLE</b> royalty luxury dignity wisdom spirituality passion vision magic
<b>YELLOW</b> joy cheerfulness friendliness intellect energy warmth caution cowardice	<b>WHITE</b> freshness hope goodness light purity cleanliness simplicity coolness	<b>PINK</b> romance compassion faithfulness beauty love friendship sensitivity
<b>RED</b> danger passion daring romance style excitement urgency energetic	<b>BLUE</b> peace stability calmness confidence tranquility sincerity affection integrity	<b>GREEN</b> life growth environment healing money safety relaxation freshness

# Perceiving Values



# Perceiving Values

## Colours In Cultures



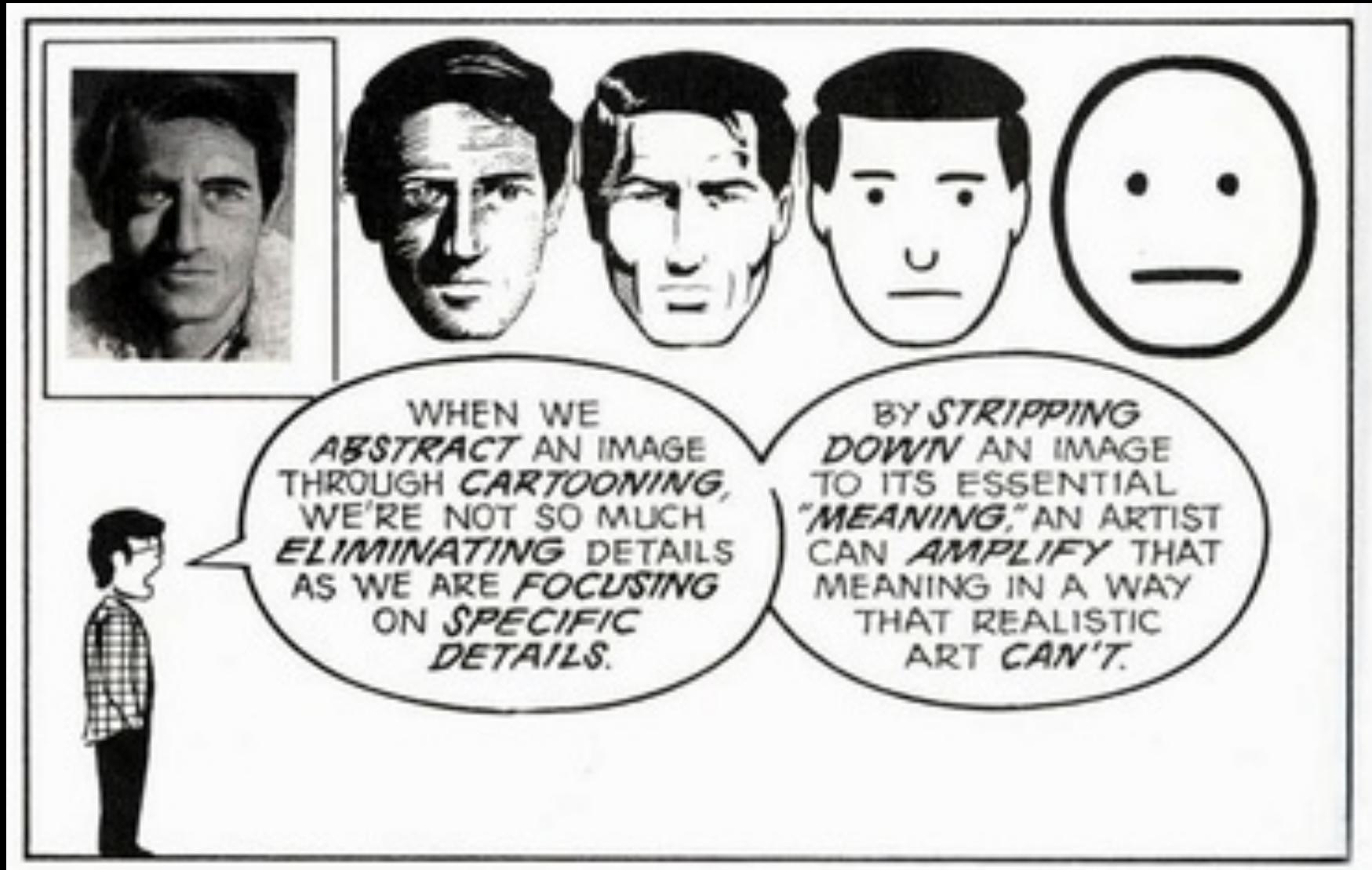
A	Western / American	F	Asian
B	Japanese	G	Eastern European
C	Hindu	H	Muslim
D	Native American	I	African
E	Chinese	J	South American

1	Anger	43	Holiness
2	Art / Creativity	44	Illness
3	Authority	45	Insight
4	Bad Luck	46	Intelligence
5	Balance	47	Intuition
6	Beauty	48	Religion
7	Calm	49	Jealousy
8	Celebration	50	Joy
9	Children	51	Learning
10	Cold	52	Life
11	Compassion	53	Love
12	Courage	54	Loyalty
13	Cowardice	55	Luxury
14	Cruelty	56	Marriage
15	Danger	57	Modesty
16	Death	58	Money
17	Decadence	59	Mourning
18	Deceit	60	Mystery
19	Desire	61	Nature
20	Earthy	62	Passion
21	Energy	63	Peace
22	Erotic	64	Penance
23	Eternity	65	Power
24	Evil	66	Personal power
25	Excitement	67	Purity
26	Family	68	Radicalism
27	Femininity	69	Rational
28	Fertility	70	Reliable
29	Flamboyance	71	Repels Evil
30	Freedom	72	Respect
31	Friendly	73	Royalty
32	Fun	74	Self-cultivation
33	God	75	Strength
34	Gods	76	Style
35	Good Luck	77	Success
36	Gratitude	78	Trouble
37	Growth	79	Truce
38	Happiness	80	Trust
39	Healing	81	Unhappiness
40	Healthy	82	Virtue
41	Heat	83	Warmth
42	Heaven	84	Wisdom

# Perceiving Values

	Death	Love
Western/American	<input type="checkbox"/> Black	<input type="checkbox"/> Red
Japanese	<input type="checkbox"/> Black	<input type="checkbox"/> Red
Hindu	<input type="checkbox"/> White	<input type="checkbox"/> Green
Native American	<input type="checkbox"/> Black	<input type="checkbox"/> Yellow
Chinese	<input type="checkbox"/> White	
Asian		
Eastern European		<input type="checkbox"/> Red
Muslim	<input type="checkbox"/> Light Blue	
African		<input type="checkbox"/> Green
South American	<input type="checkbox"/> Green	

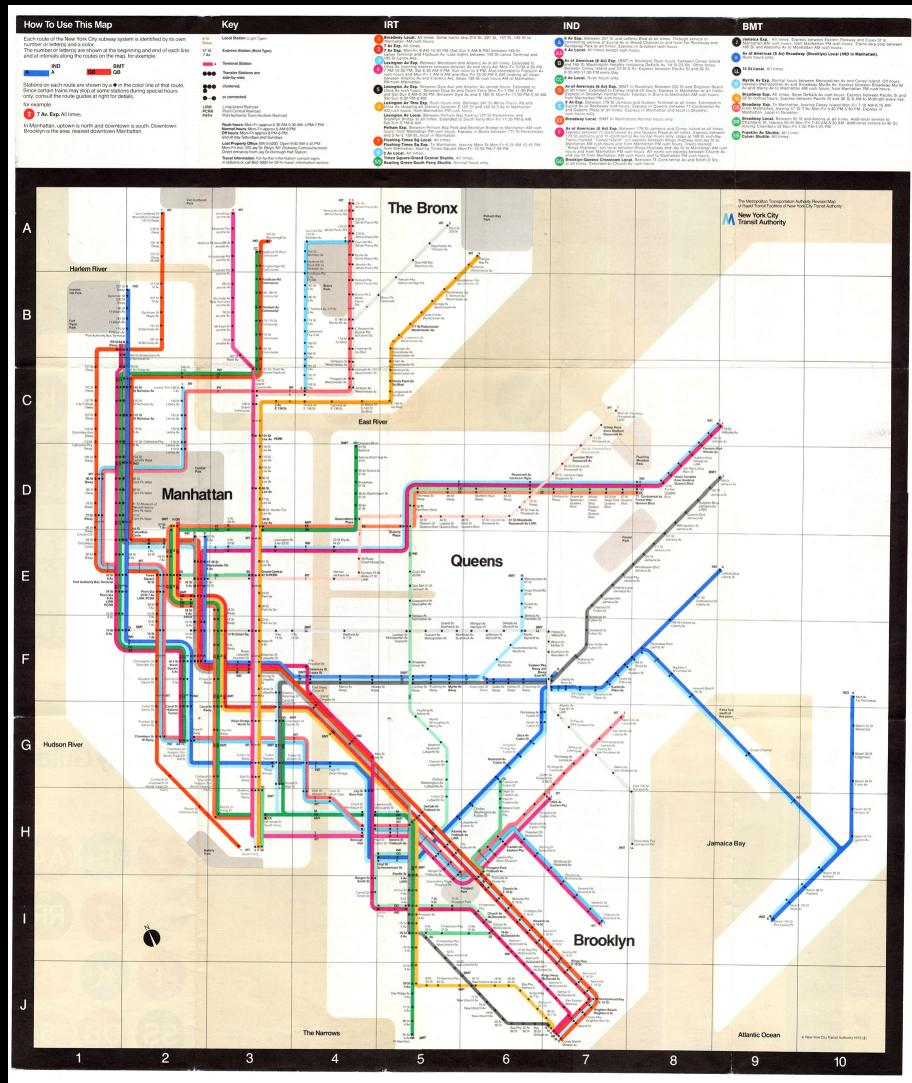
# Perceiving Values



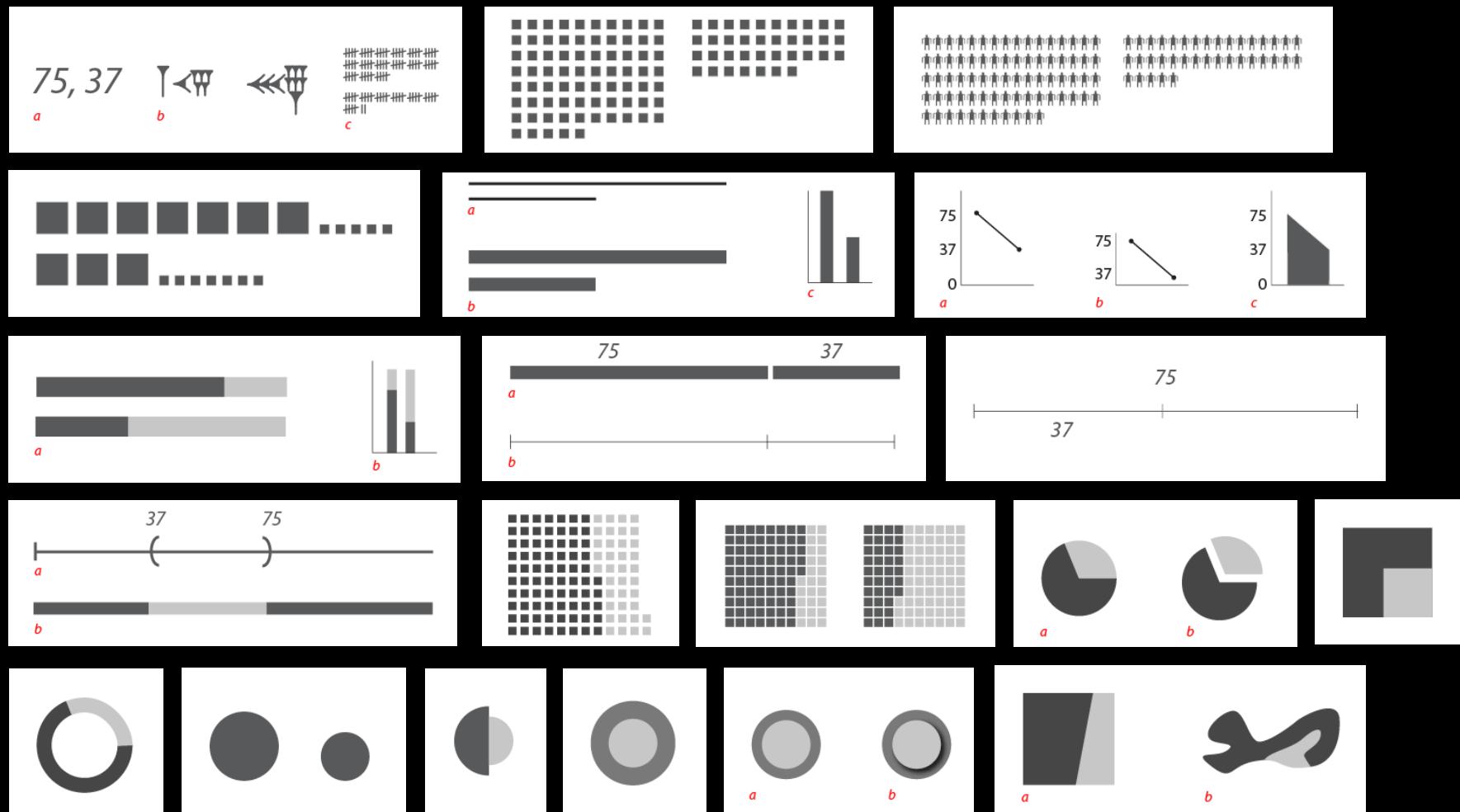
# Perceiving Values



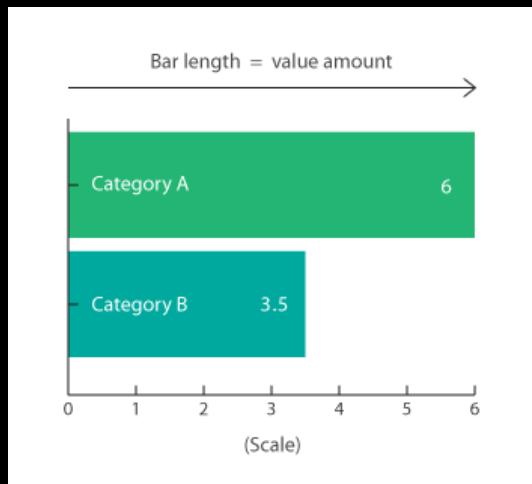
# Perceiving Values



# Perceiving Values



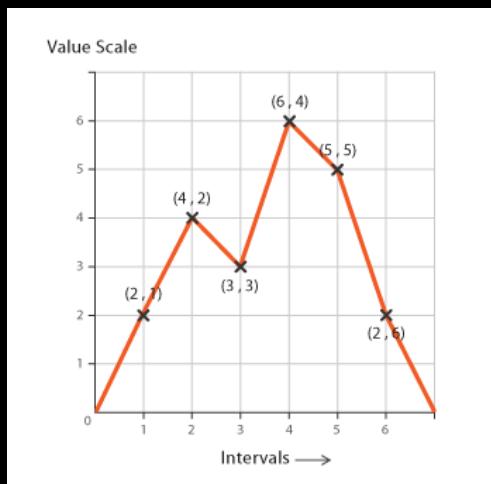
# Perceiving Values



## Bar Chart

Categorical Data

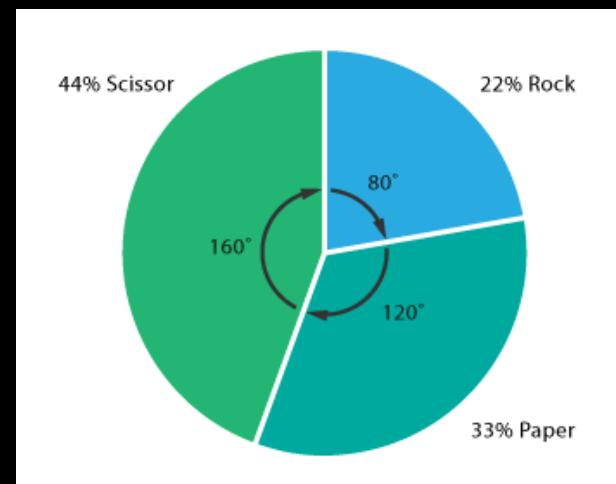
Apples, Oranges and Bananas



## Line/Area Chart

Time Based Data

1991, 1992, 1993, 1994



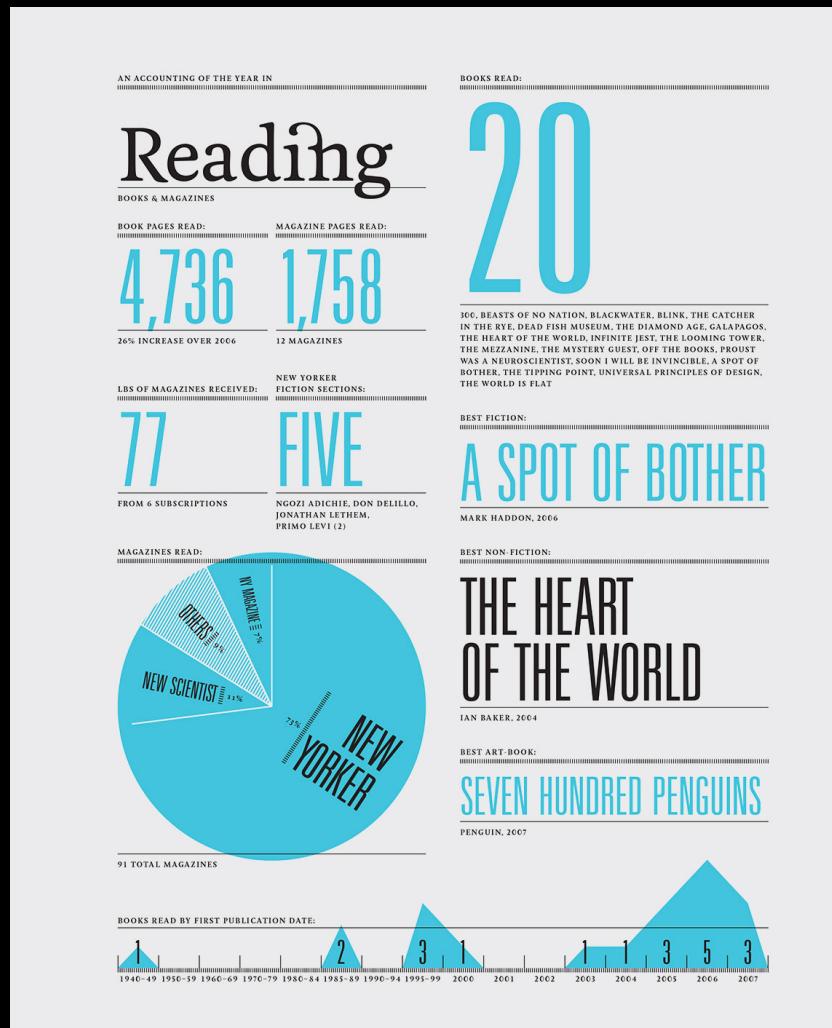
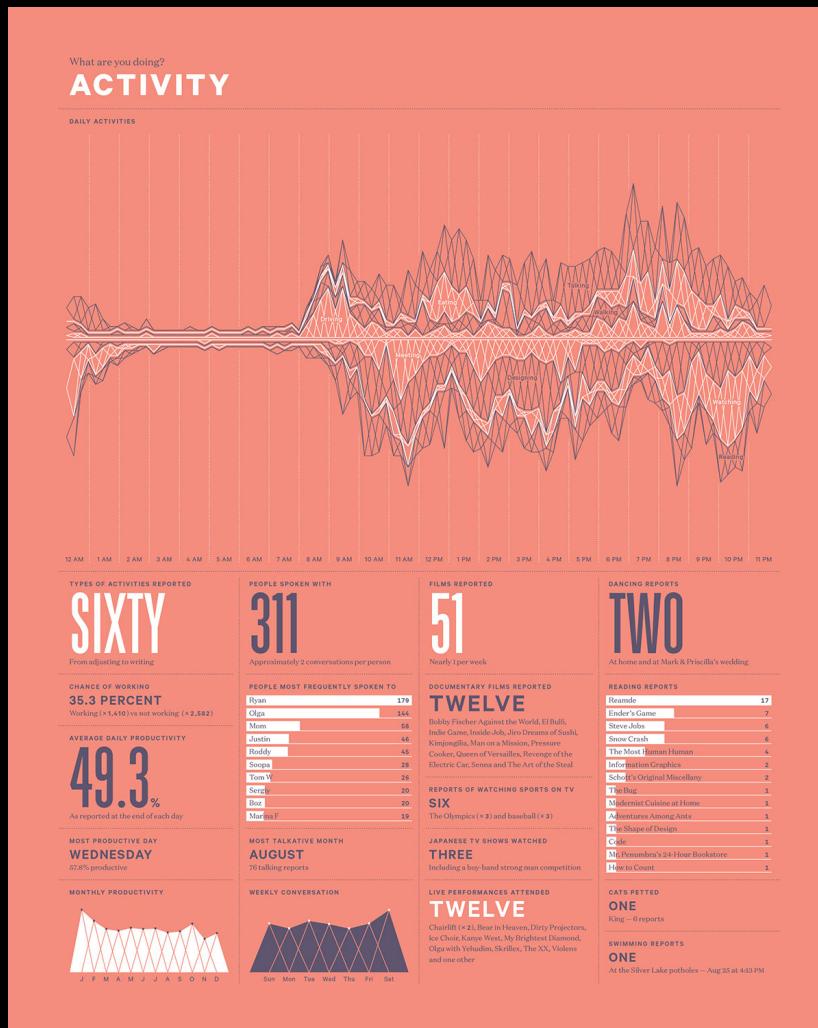
## Pie/Donut Chart

Parts of a Whole

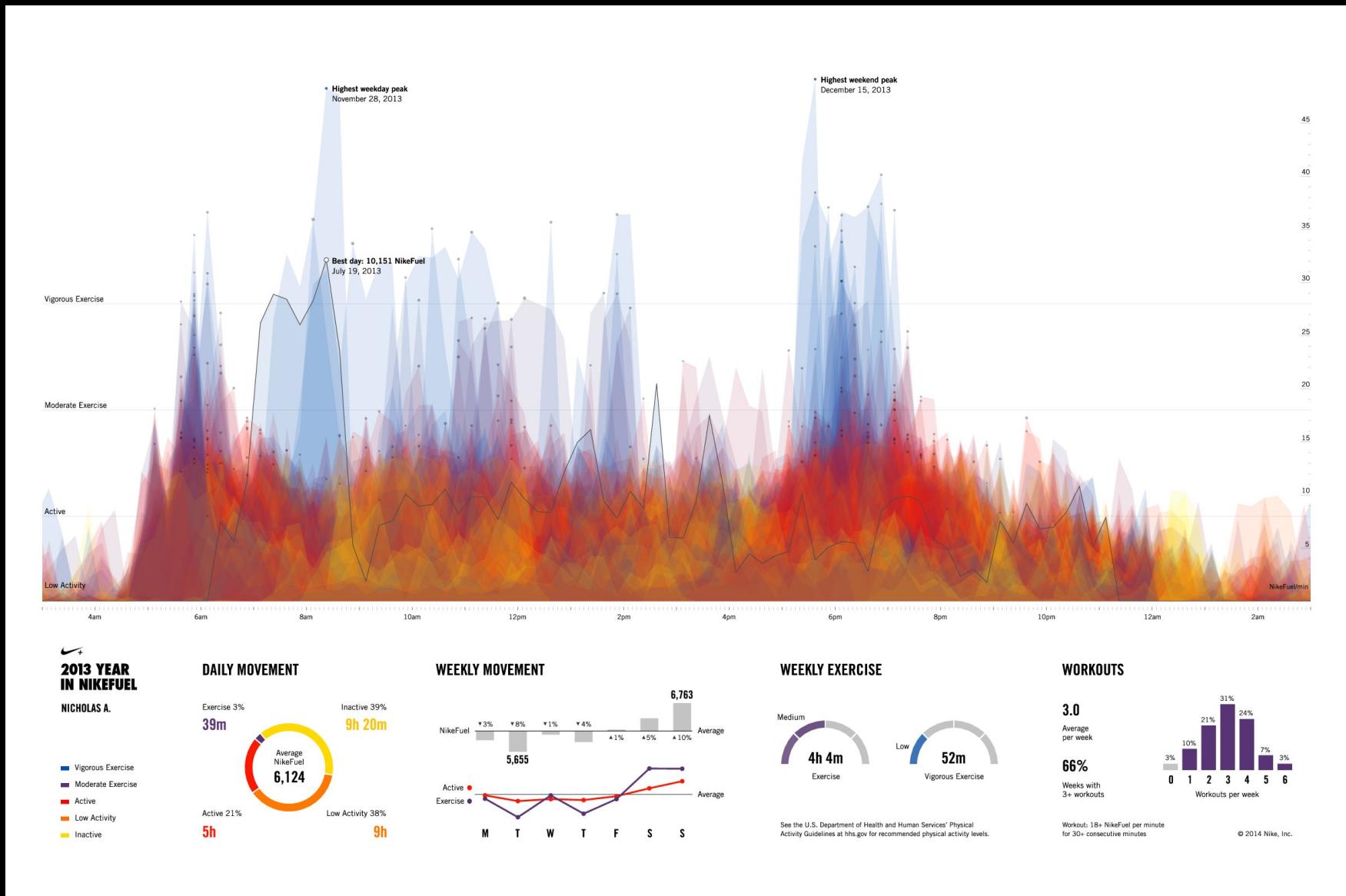
44%, 22%, 33%

Must add up to 100%

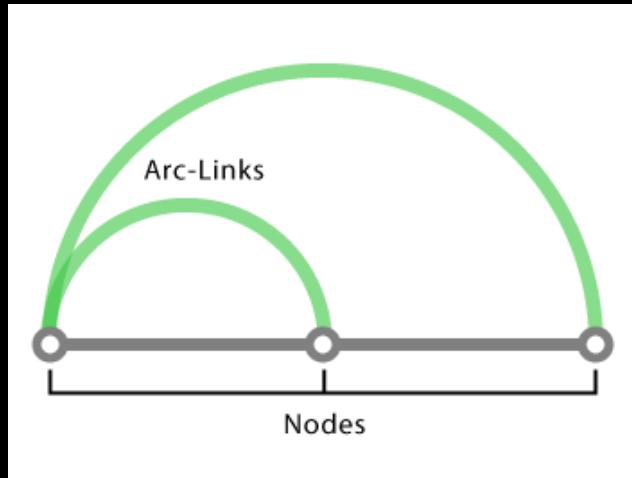
# Perceiving Values



# Perceiving Values



# Perceiving Values



## Node-Based Chart

Network Data

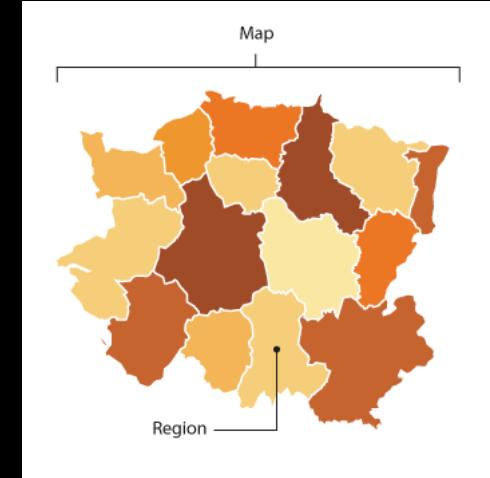
John is connected to Sally, Sarah  
and Chris



## Dot Matrix

Categorical Data

Apples, Oranges and Bananas

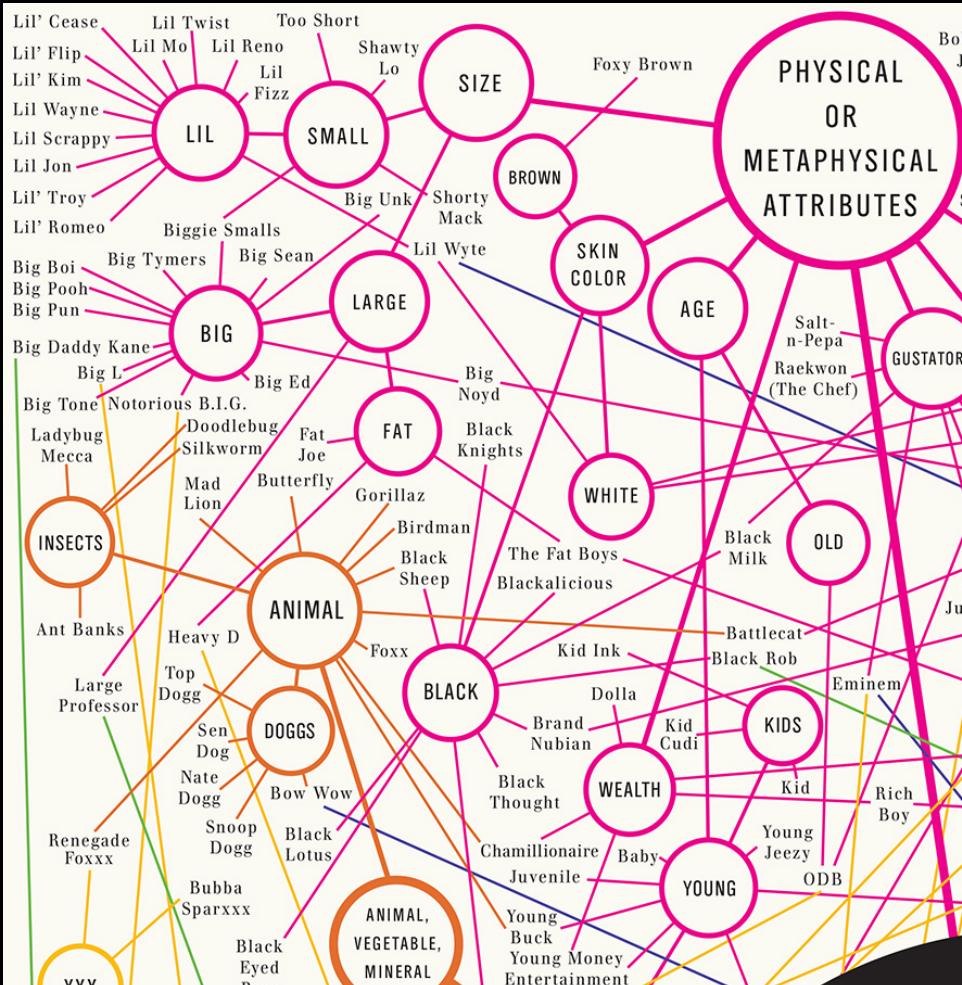
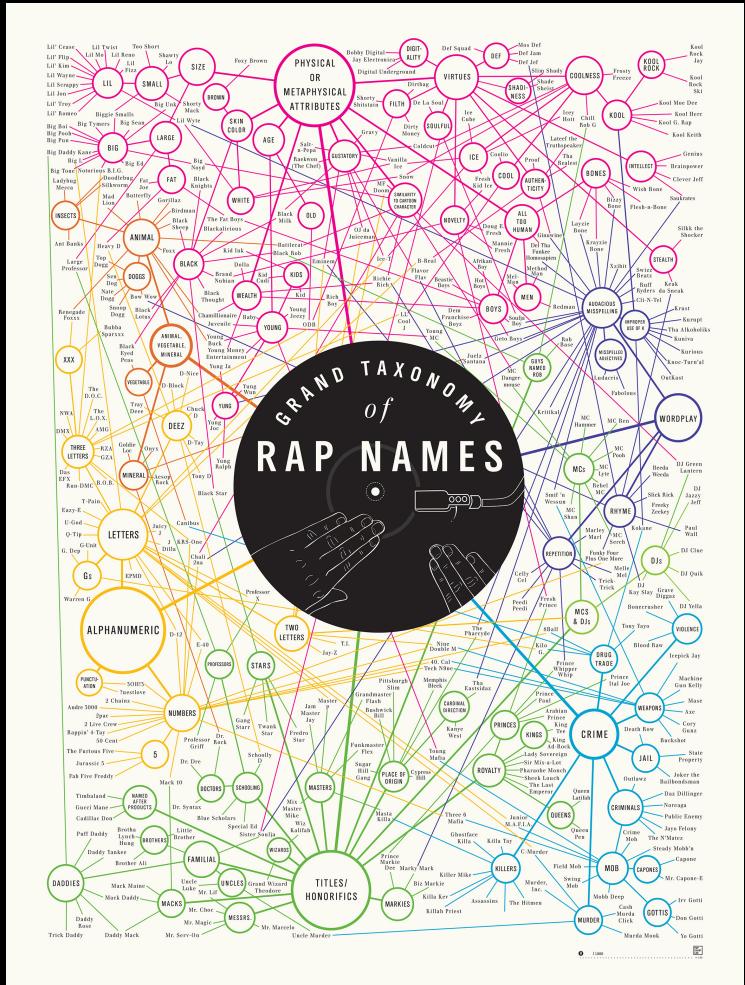


## Choropleth Map

Geographical Data

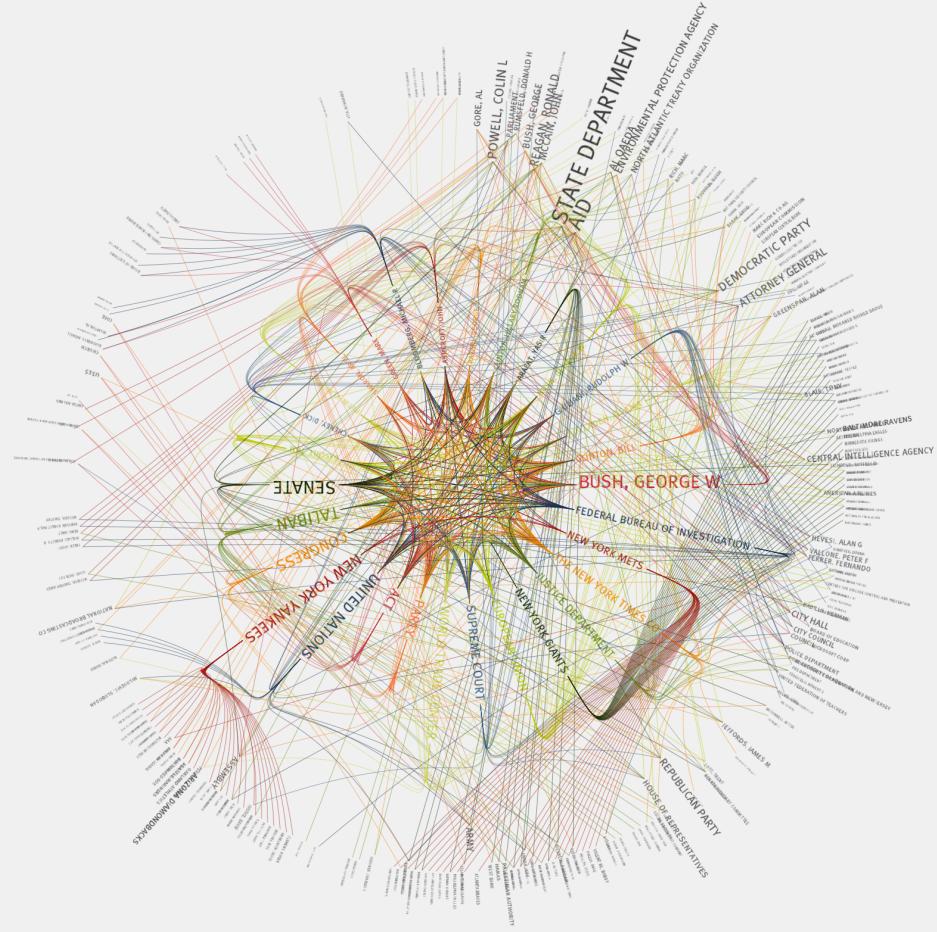
New York, Hawaii, Alaska

# Perceiving Values

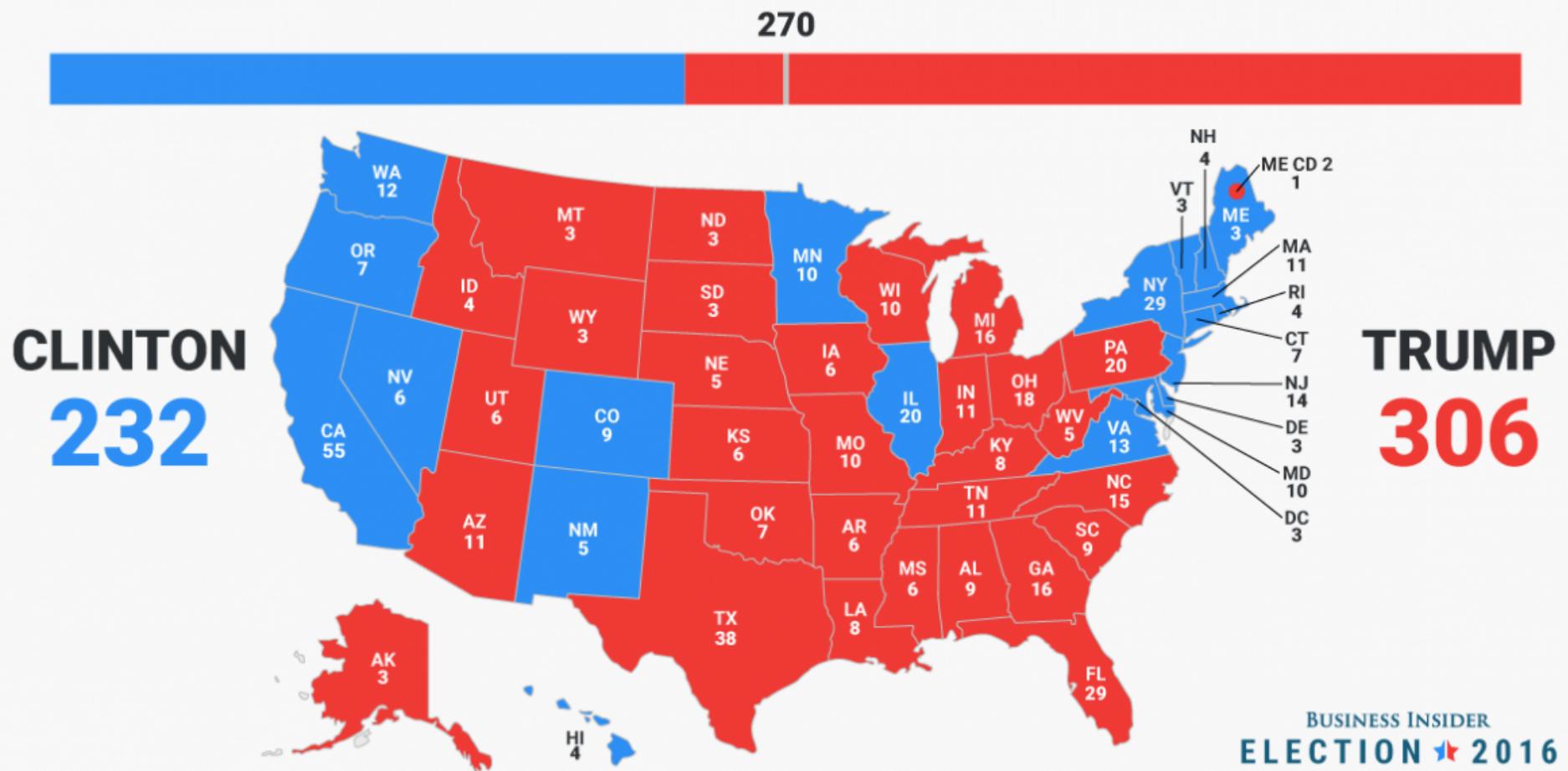


# Perceiving Values

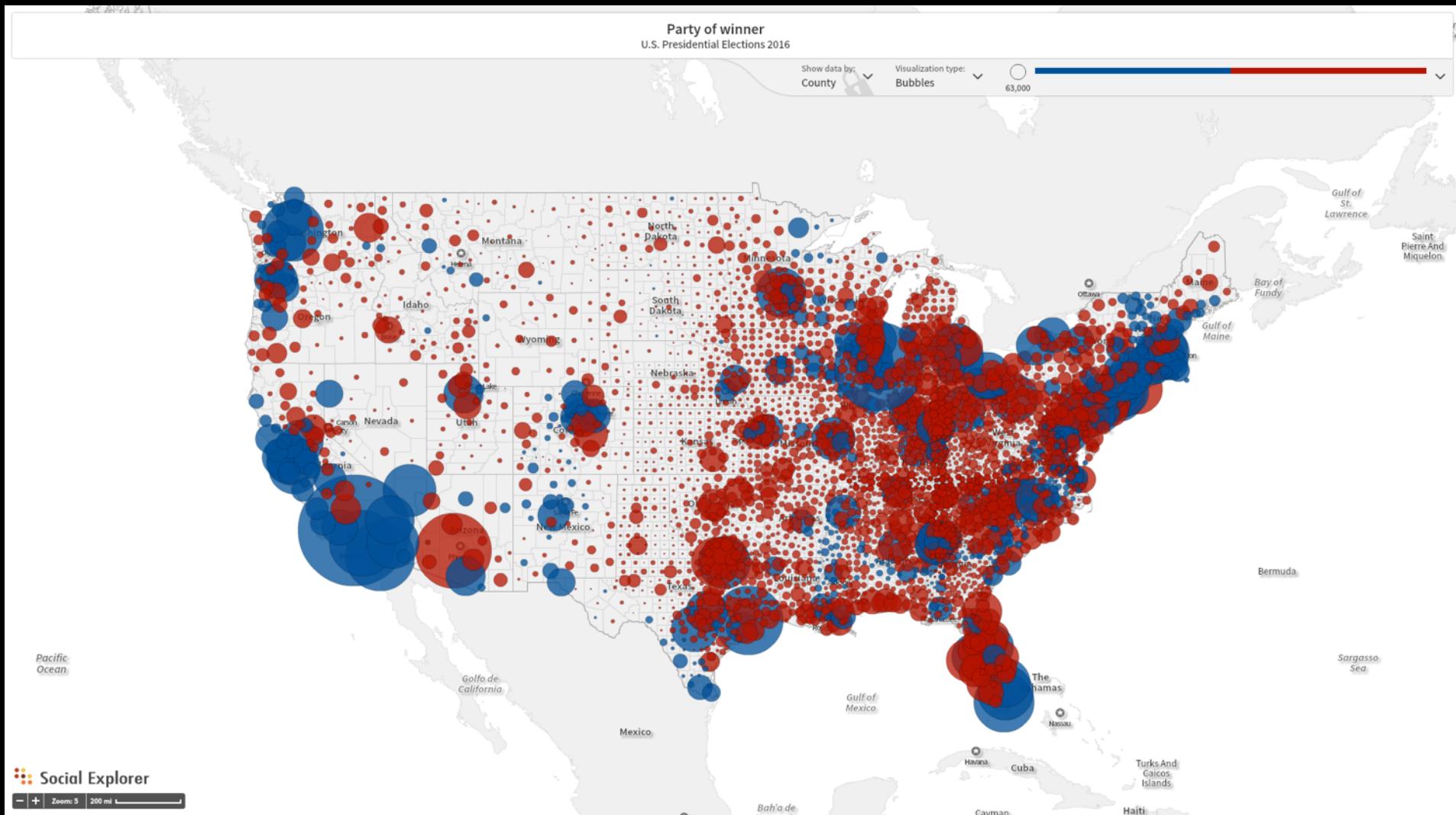
2001



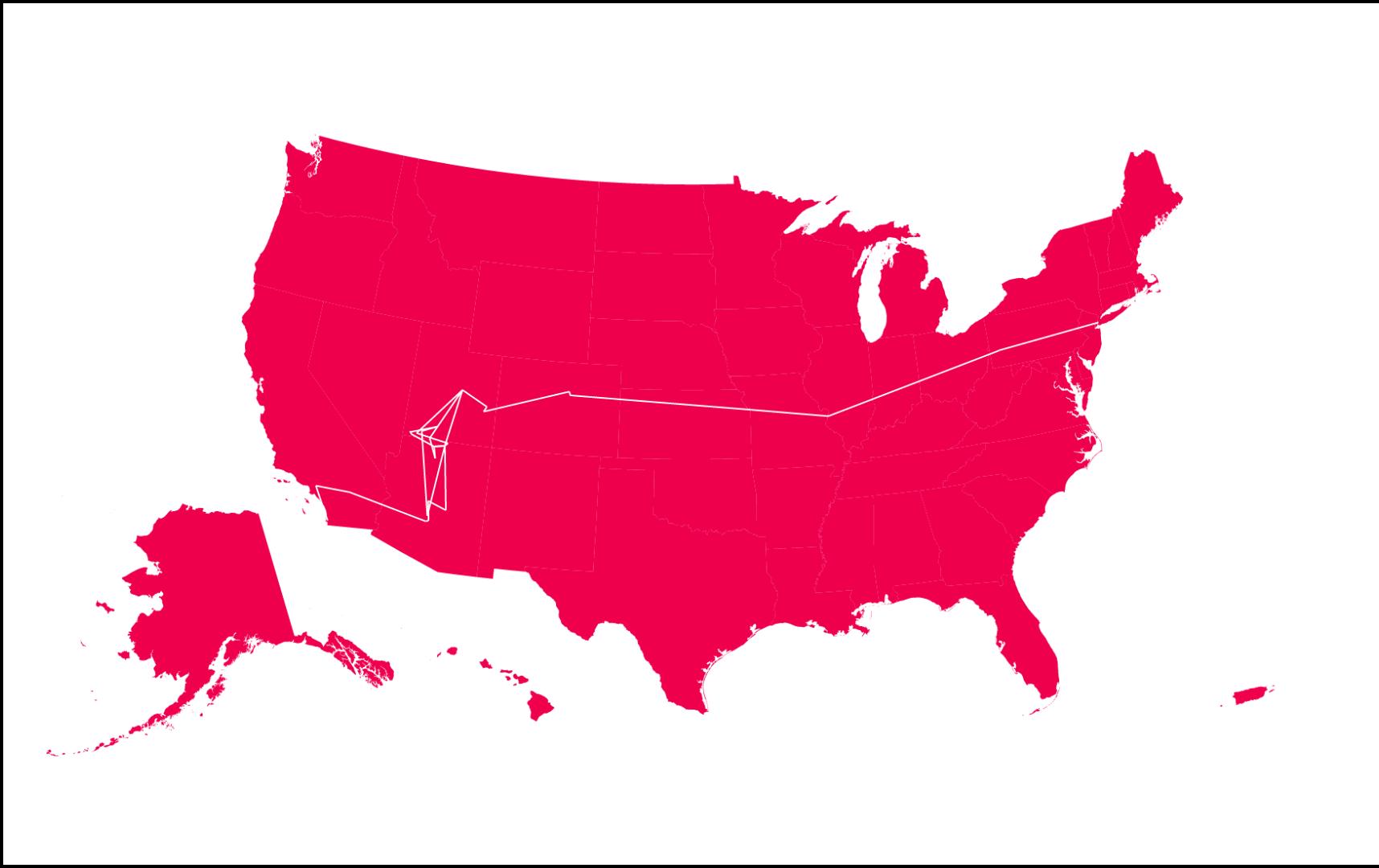
# Perceiving Values



# Perceiving Values



# Perceiving Values



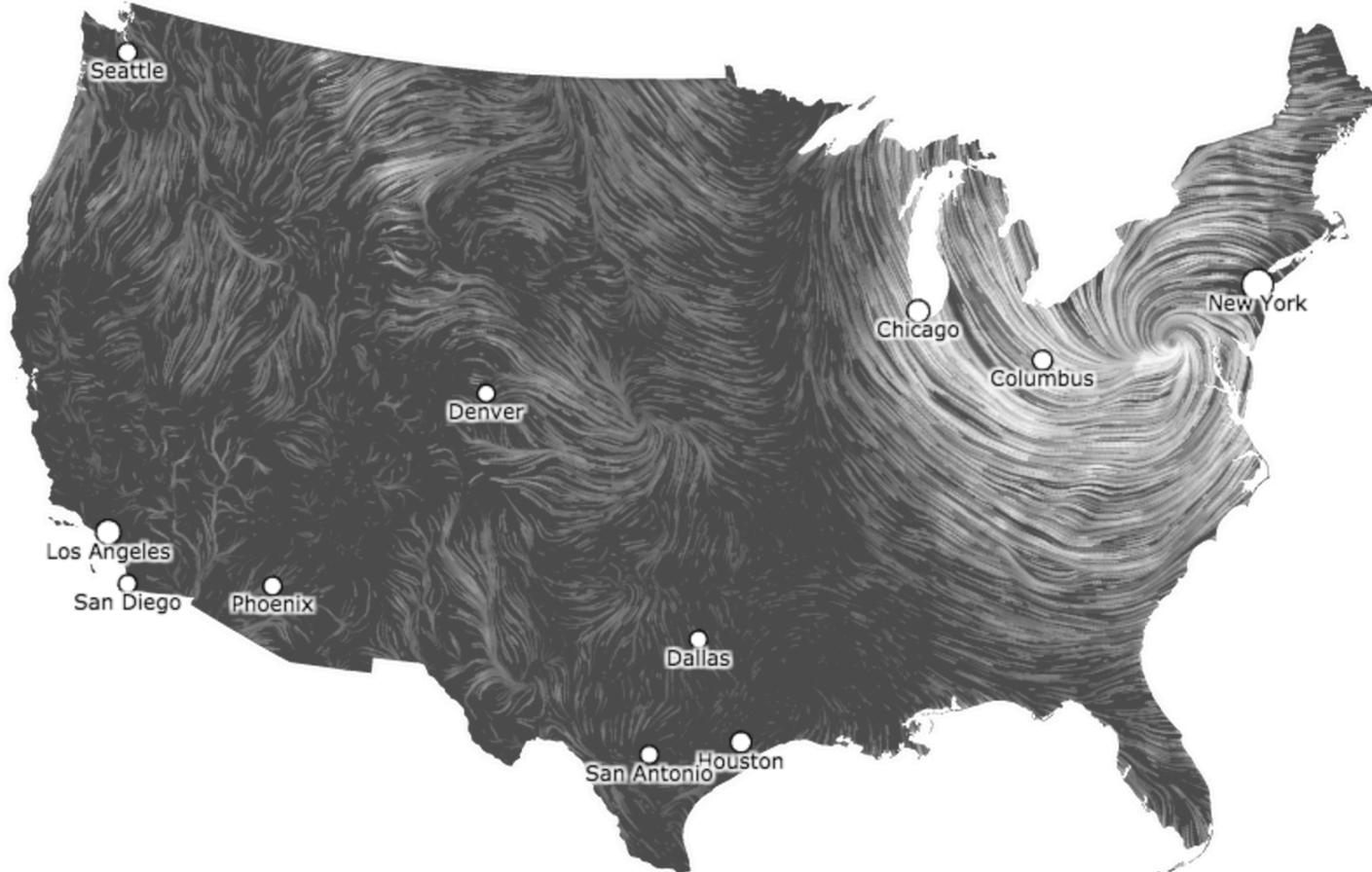
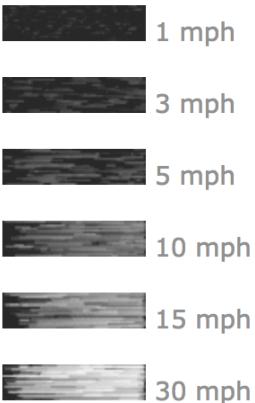
# Perceiving Values

October 30, 2012

6:59 am EST

(time of forecast download)

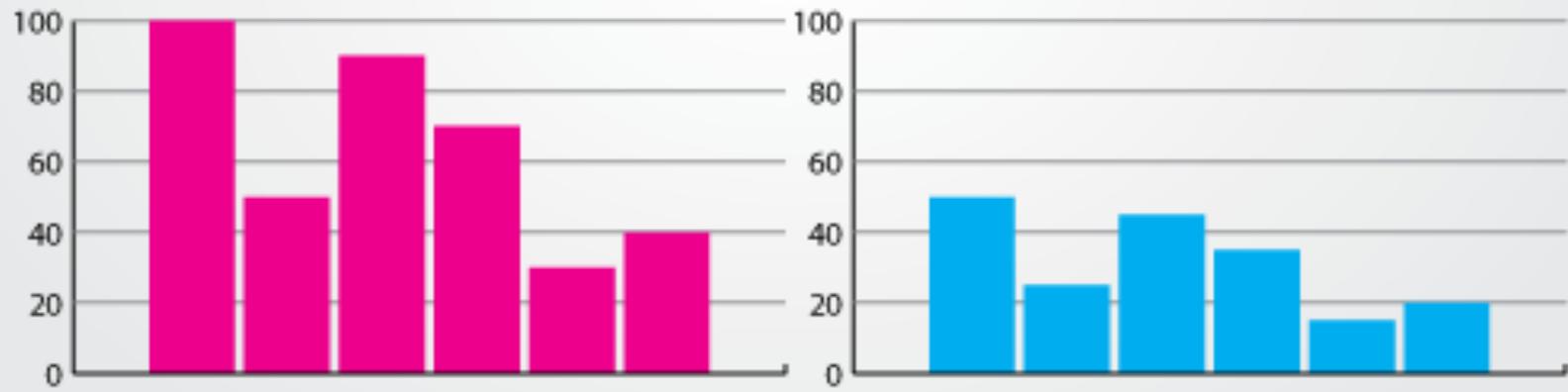
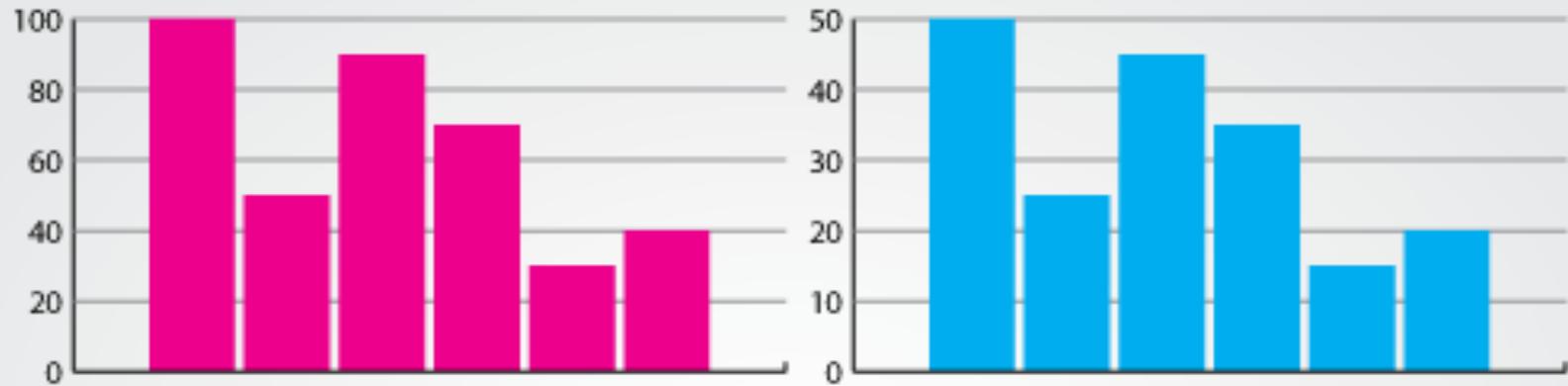
top speed: **39.7 mph**  
average: **8.4 mph**



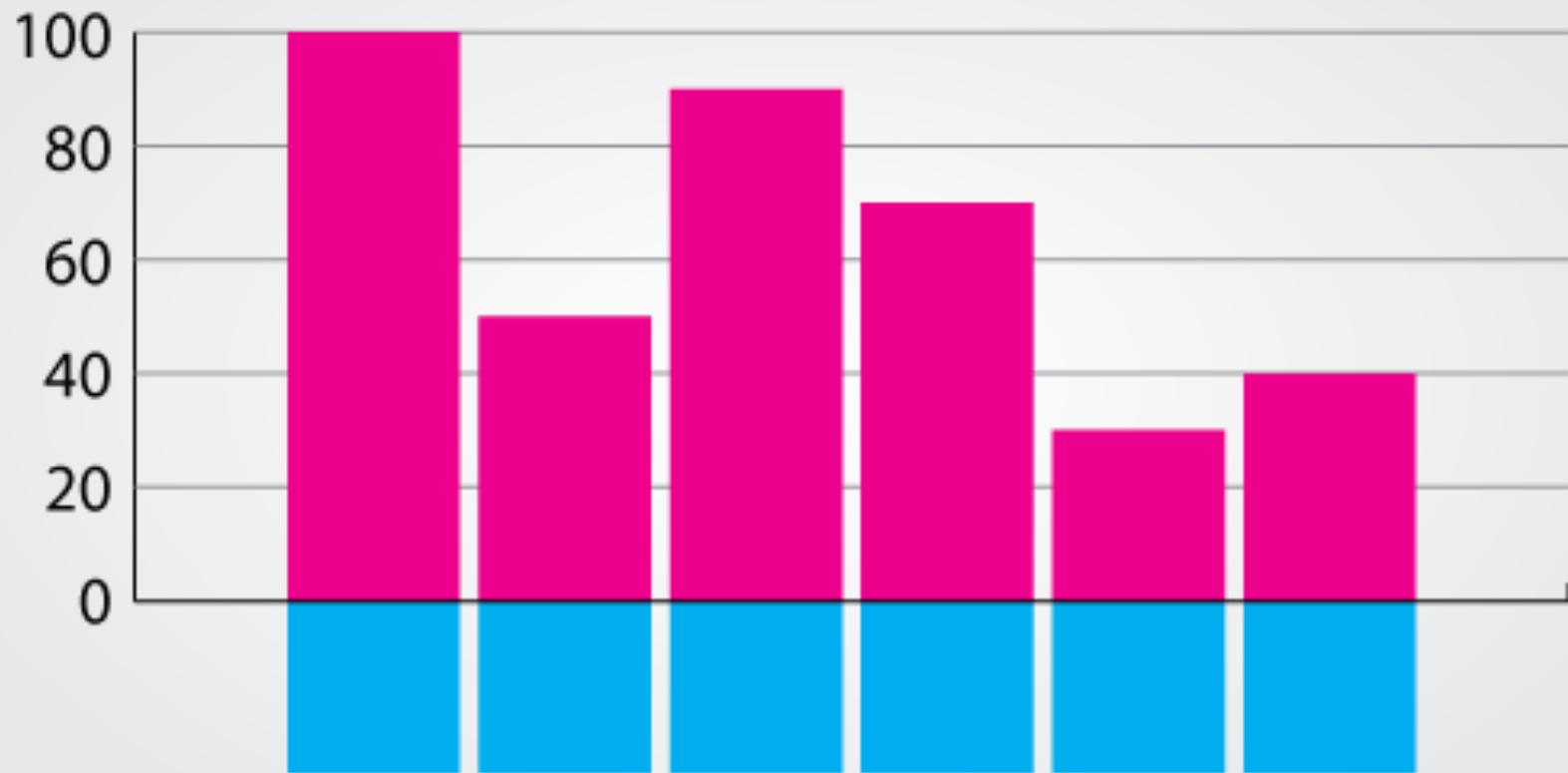
# Perceiving Values



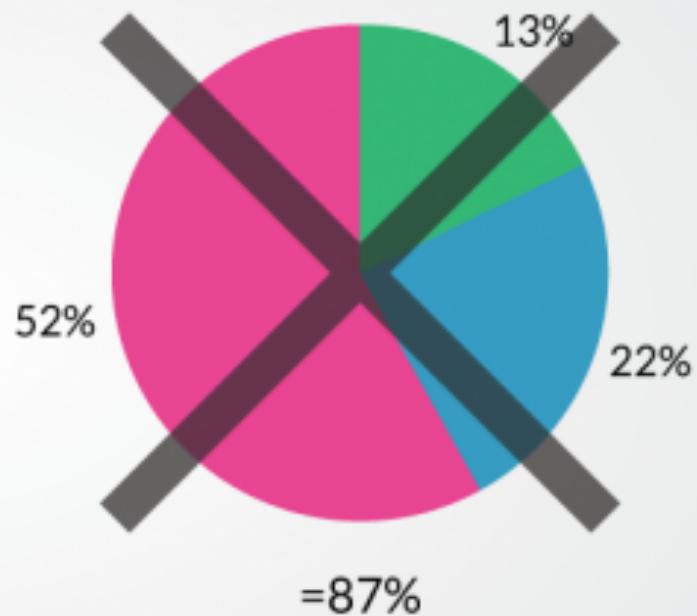
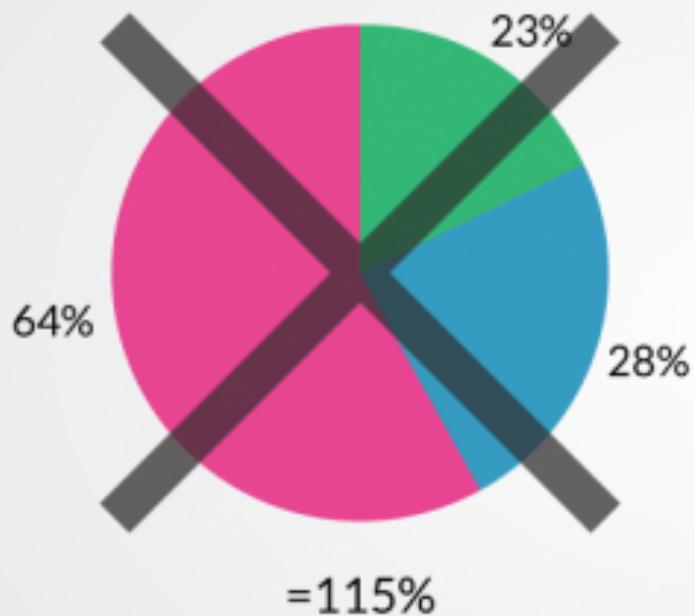
# Design – Bad Habits



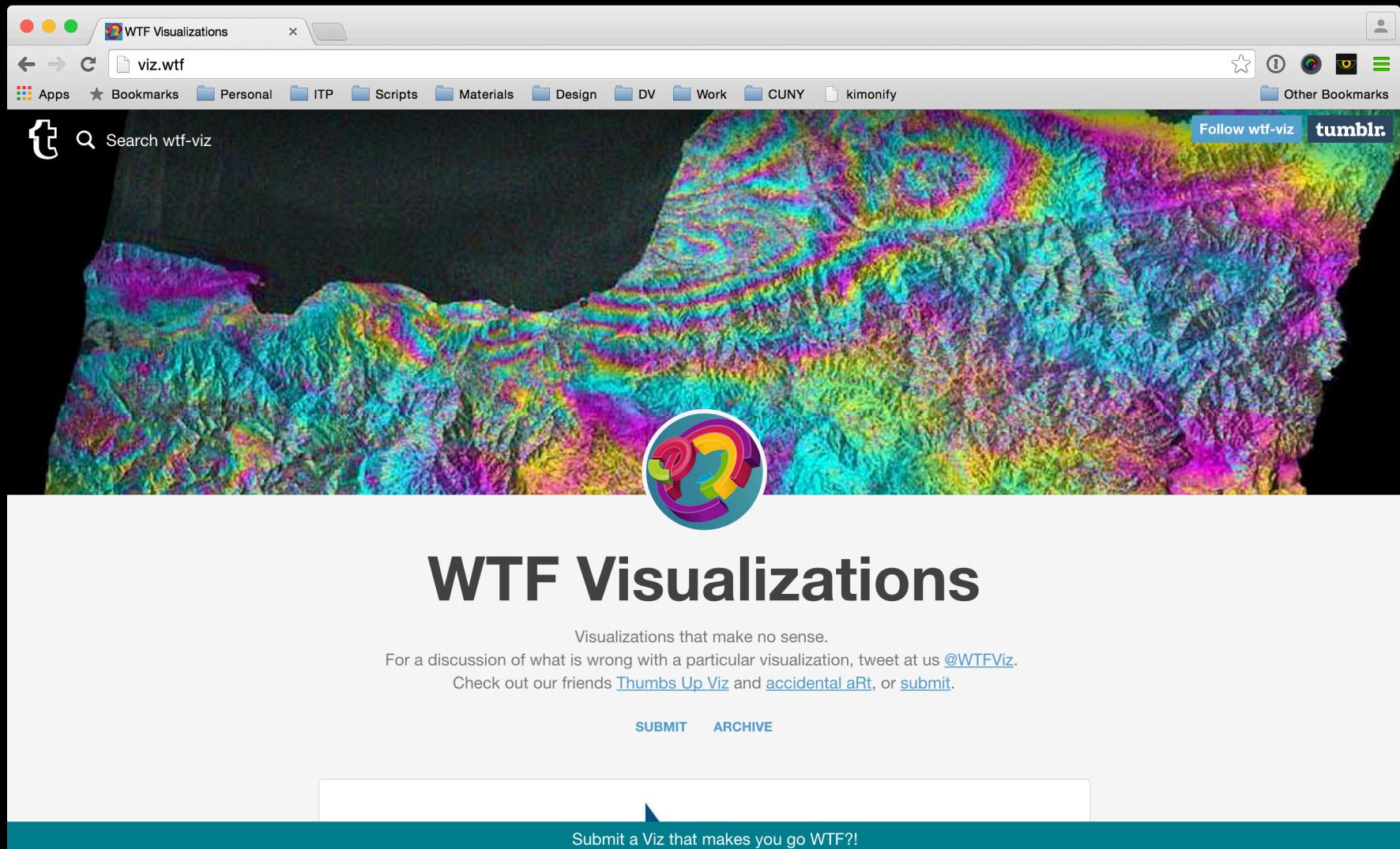
# Design – Bad Habits



# Design – Bad Habits



# Design – Bad Habits



The screenshot shows a web browser window with the title "WTF Visualizations". The address bar contains "viz.wtf". The bookmarks bar includes "Apps", "Bookmarks", "Personal", "ITP", "Scripts", "Materials", "Design", "DV", "Work", "CUNY", and "kimonify". On the right side of the browser, there are links for "Follow wtf-viz" and "tumblr". Below the browser window, the main content of the website is visible. It features a large, colorful, abstract visualization that looks like a distorted landscape or a complex fractal pattern. In the center of this visualization is a circular logo consisting of overlapping colored bands (blue, green, yellow, red) forming a stylized letter 'W'. Below the visualization, the text "WTF Visualizations" is displayed in a large, bold, dark font. Underneath this, a smaller text reads "Visualizations that make no sense." Further down, it says "For a discussion of what is wrong with a particular visualization, tweet at us [@WTFViz](#). Check out our friends [Thumbs Up Viz](#) and [accidental aRt](#), or [submit](#)." At the bottom of the page, there are two buttons: "SUBMIT" and "ARCHIVE". A teal footer bar at the very bottom contains the text "Submit a Viz that makes you go WTF?!"

viz.wtf

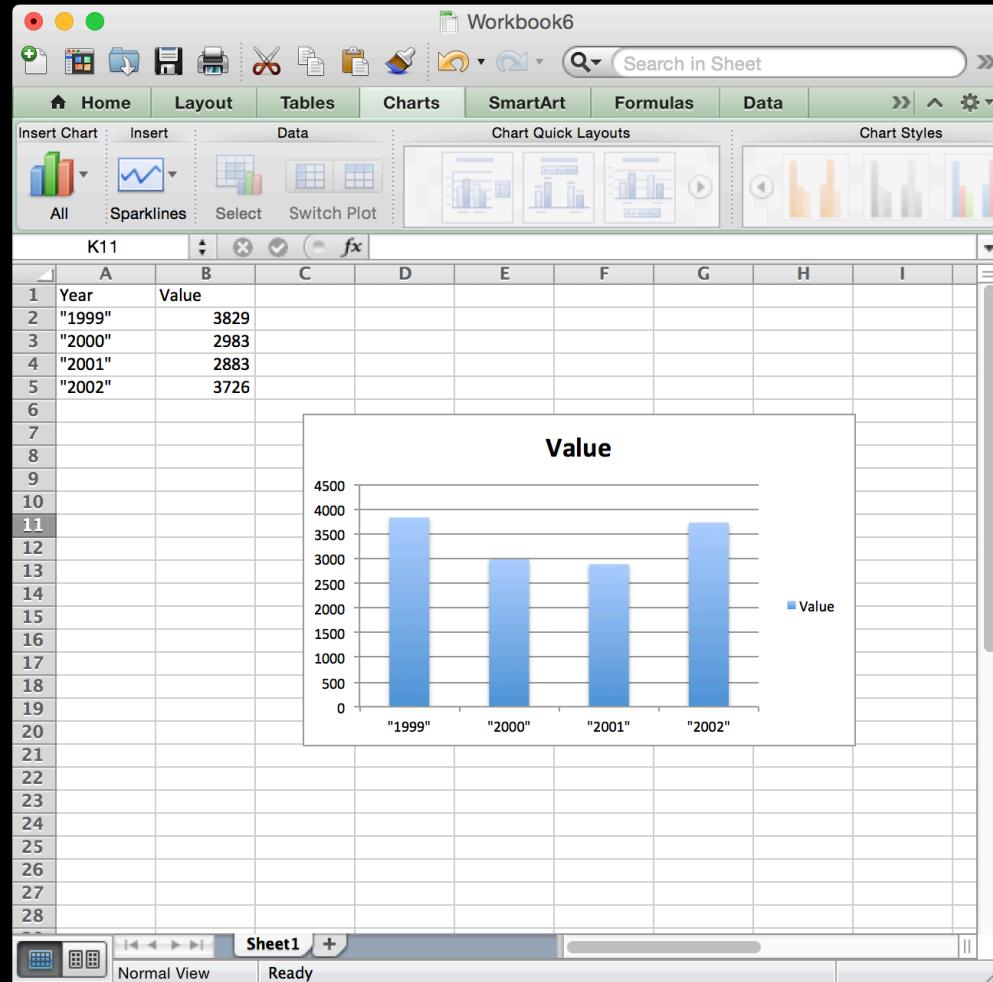
# Tools



Adobe Illustrator

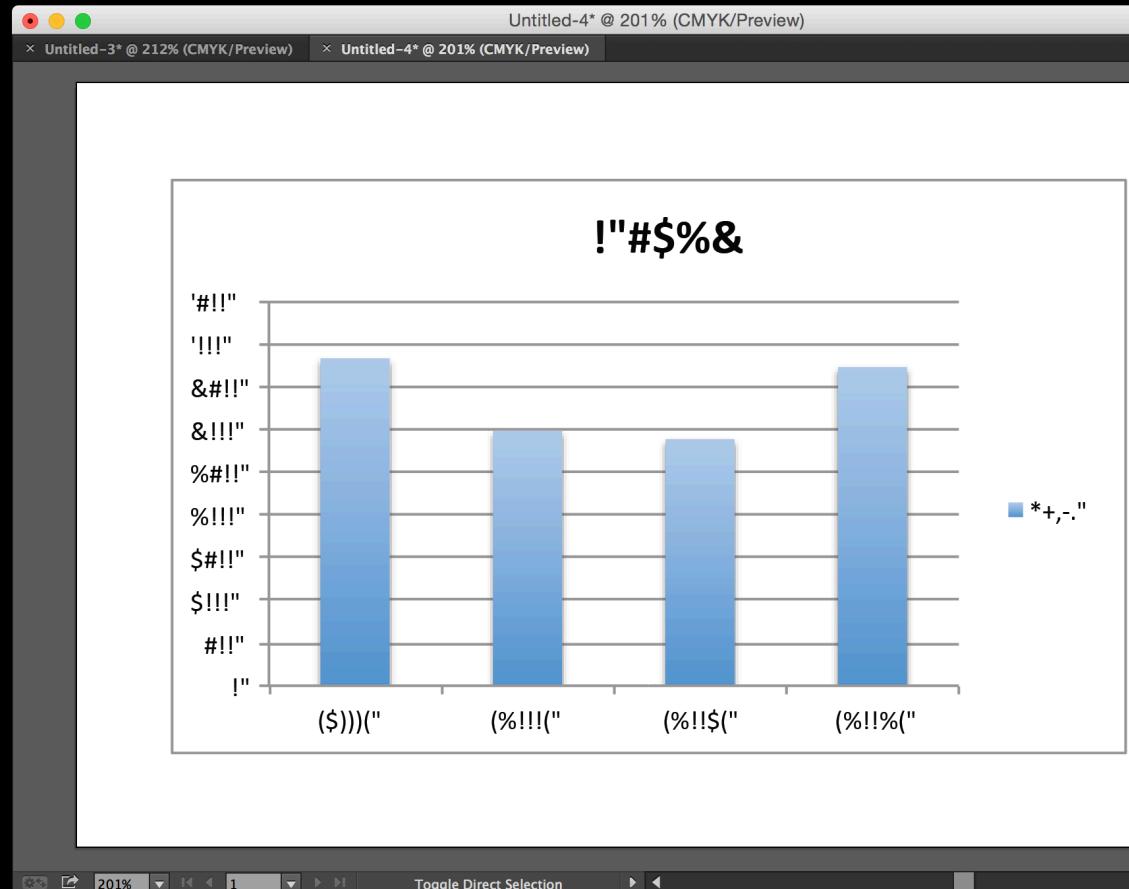
# What not to do

## Tracing from Image



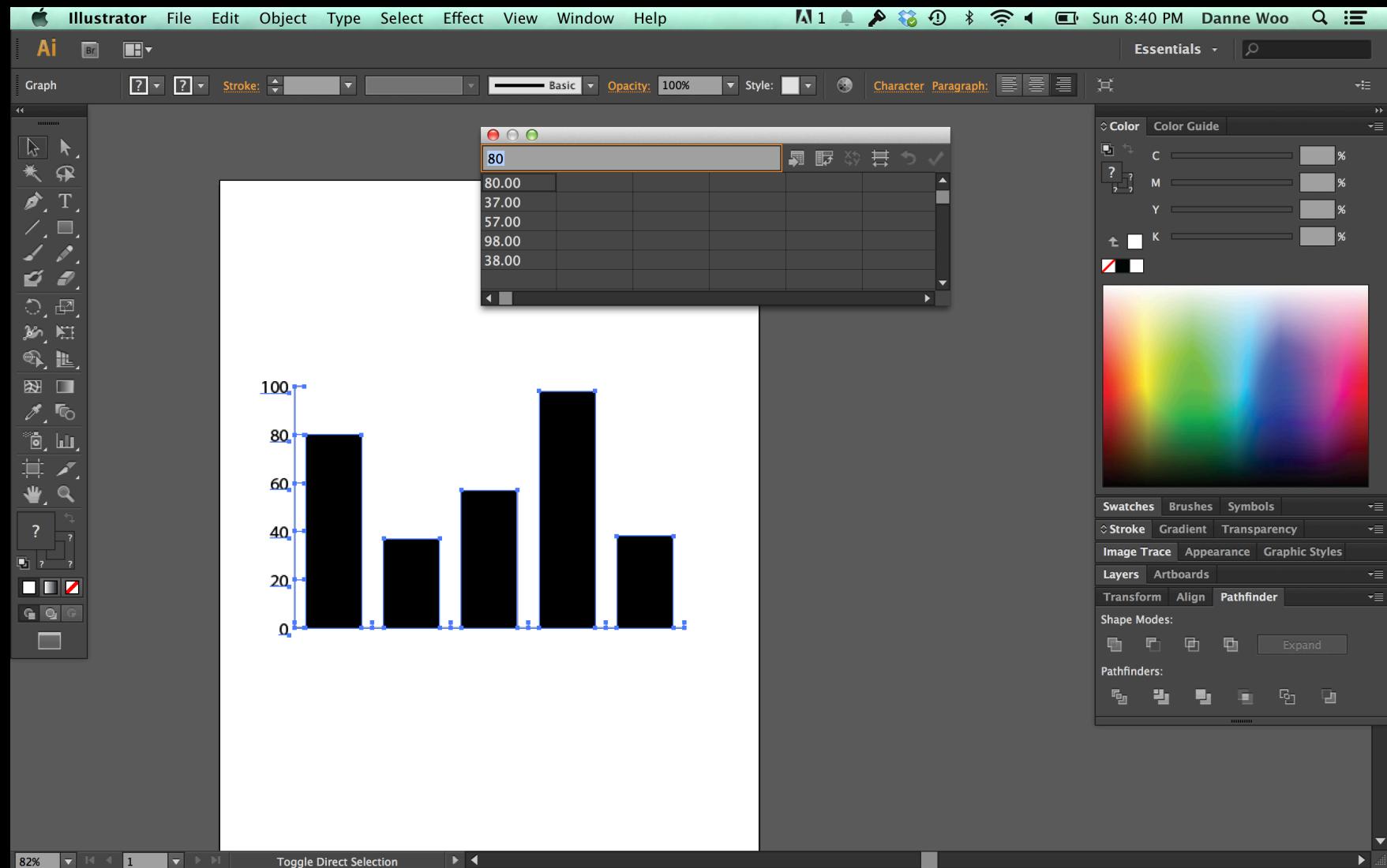
# What not to do

Copy and paste  
from another  
program like Excel  
(Slightly better than  
tracing)



# Adobe Illustrator

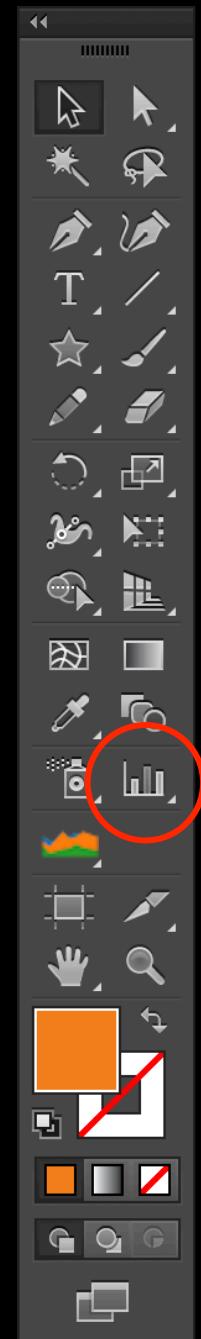
## Graphing Tool



# Adobe Illustrator

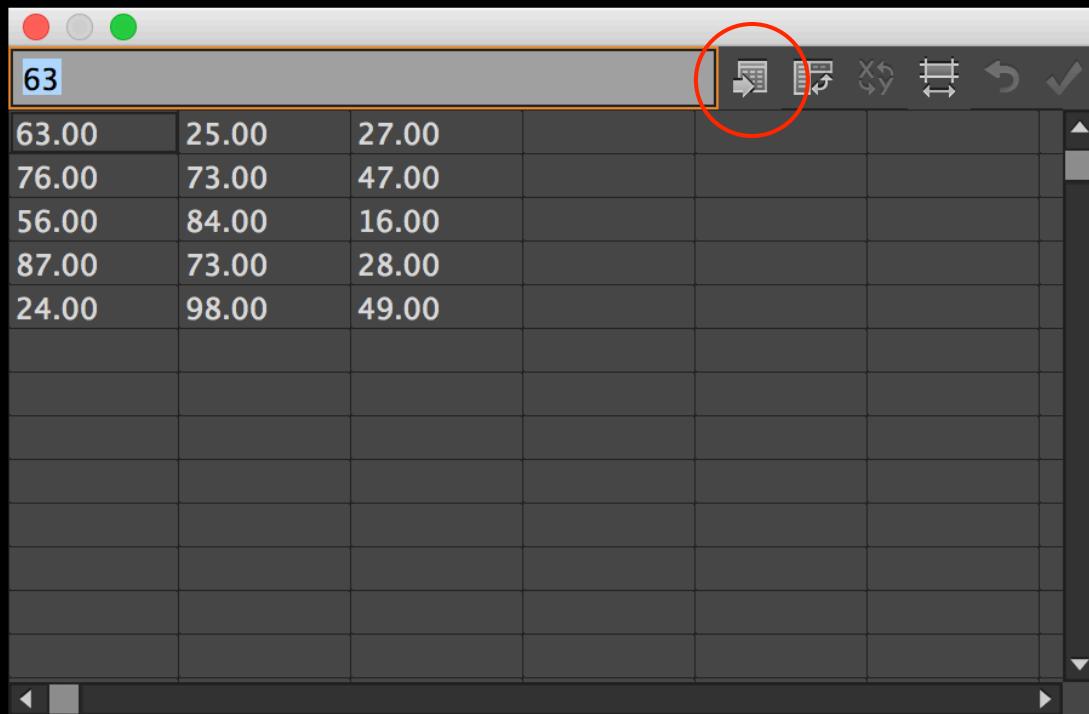
## Graphing Tool

-  Column Graph Tool (J)
-  Stacked Column Graph Tool
-  Bar Graph Tool
-  Stacked Bar Graph Tool
-  Line Graph Tool
-  Area Graph Tool
-  Scatter Graph Tool
-  Pie Graph Tool
-  Radar Graph Tool



# Adobe Illustrator

# Data Input



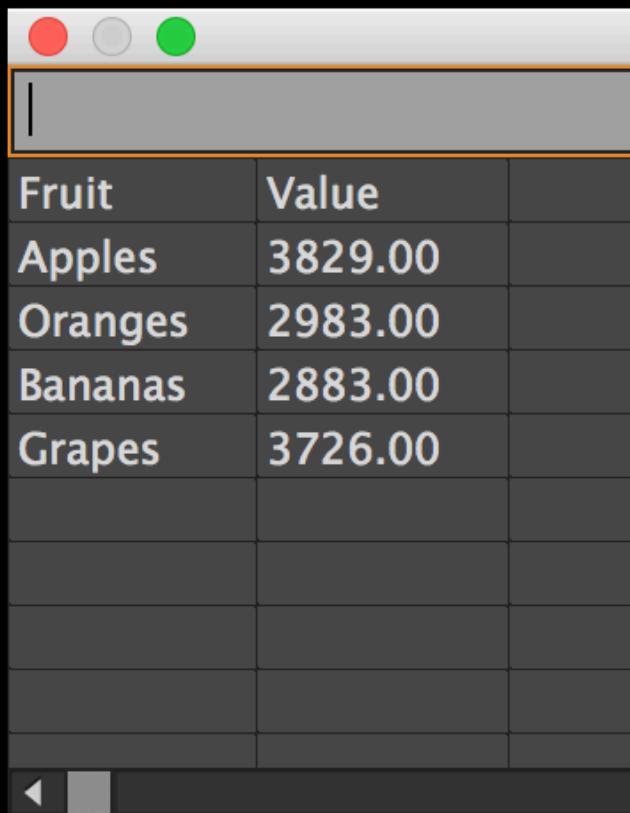
TSV

# Tab Separated Values

# Adobe Illustrator

## Data Input Labels

Label - String



A screenshot of the Adobe Illustrator interface showing a data input field. The field is a simple text input box with a placeholder character '|'. Above the input box are three standard OS X window control buttons: a red circle, a grey circle, and a green circle. Below the input box is a table with two columns: 'Fruit' and 'Value'. The table contains five rows of data:

Fruit	Value
Apples	3829.00
Oranges	2983.00
Bananas	2883.00
Grapes	3726.00

Label - Number

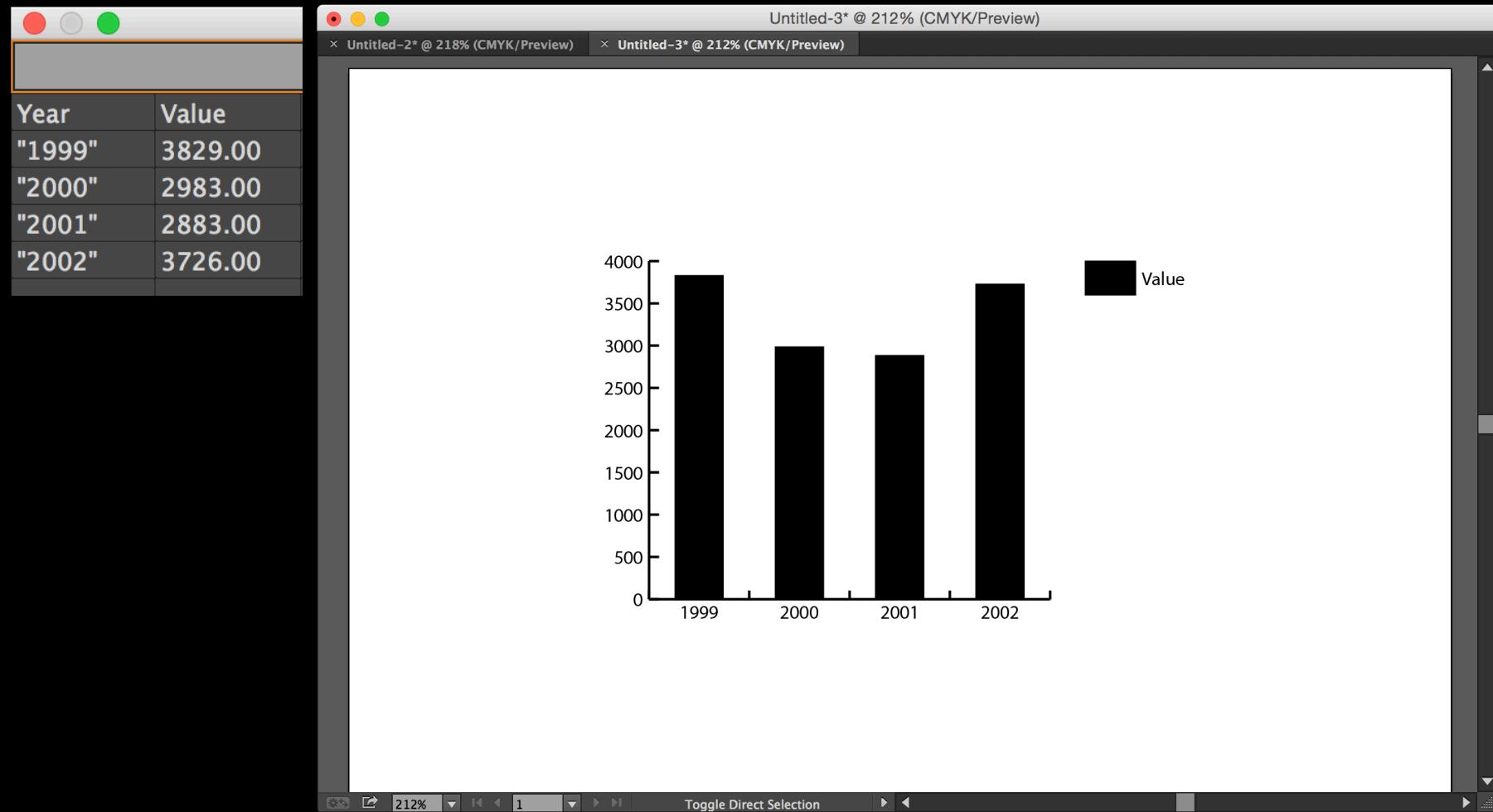


A screenshot of the Adobe Illustrator interface showing a data input field. The field is a simple text input box with a placeholder character '|'. Above the input box are three standard OS X window control buttons: a red circle, a grey circle, and a green circle. Below the input box is a table with two columns: 'Year' and 'Value'. The table contains five rows of data:

Year	Value
"1999"	3829.00
"2000"	2983.00
"2001"	2883.00
"2002"	3726.00

# Adobe Illustrator

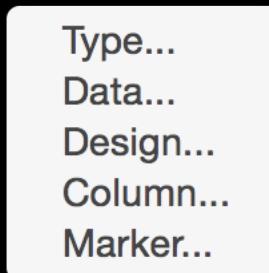
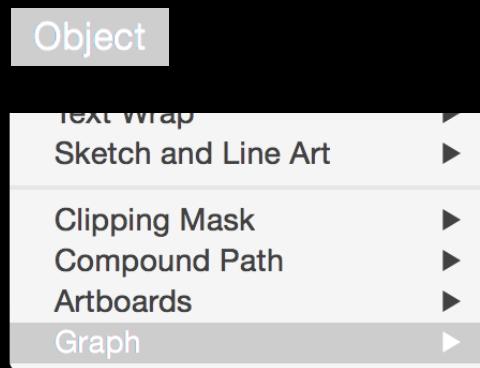
## Result



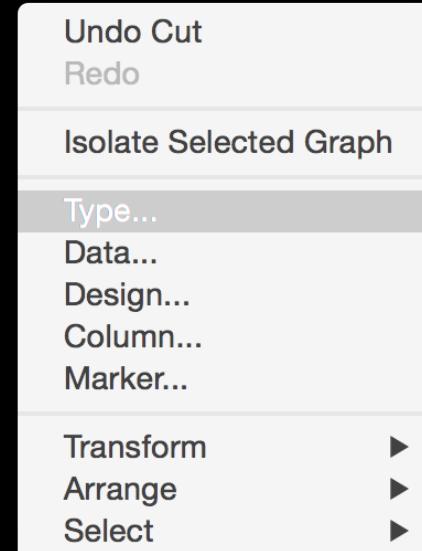
# Adobe Illustrator

## Graphing Tool Menu

Via Top Menu



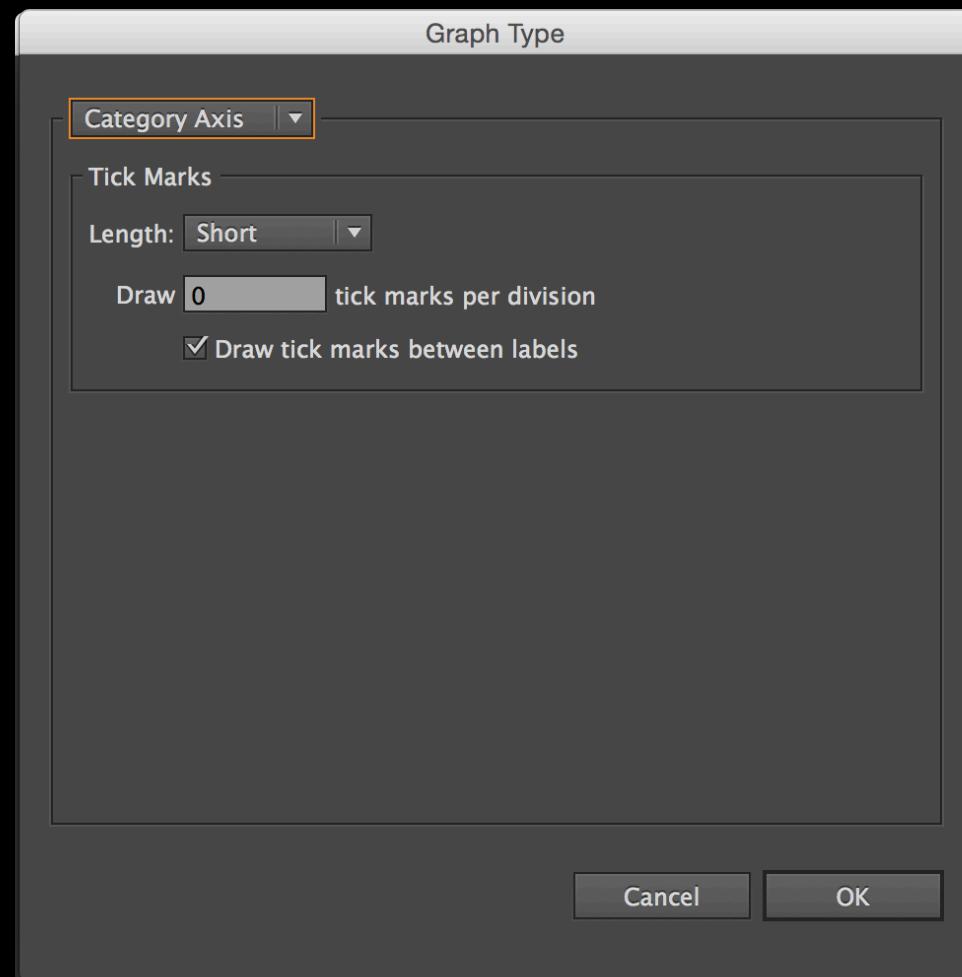
Control Click (Right Click)



# Adobe Illustrator

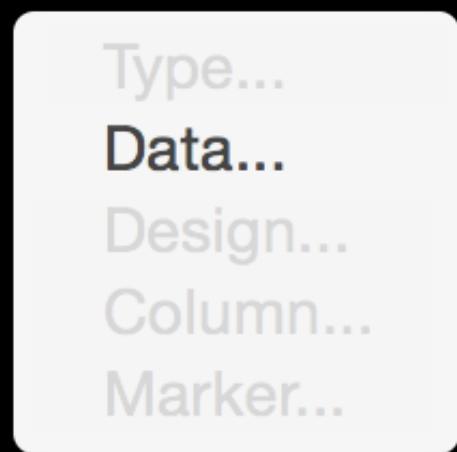
## Graphing Tool Type

Type...  
Data...  
Design...  
Column...  
Marker...



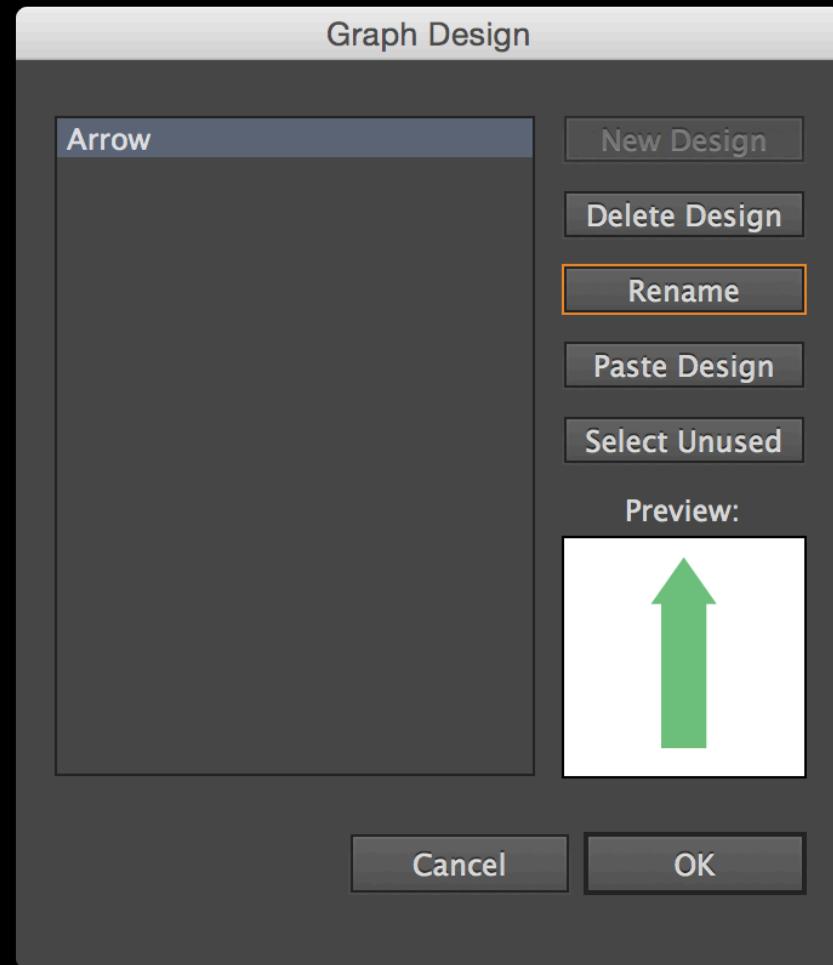
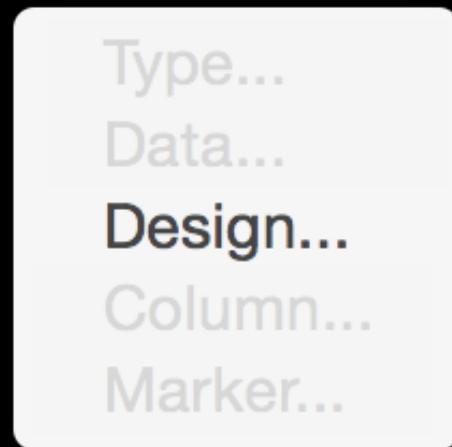
# Adobe Illustrator

# Graphing Tool Data



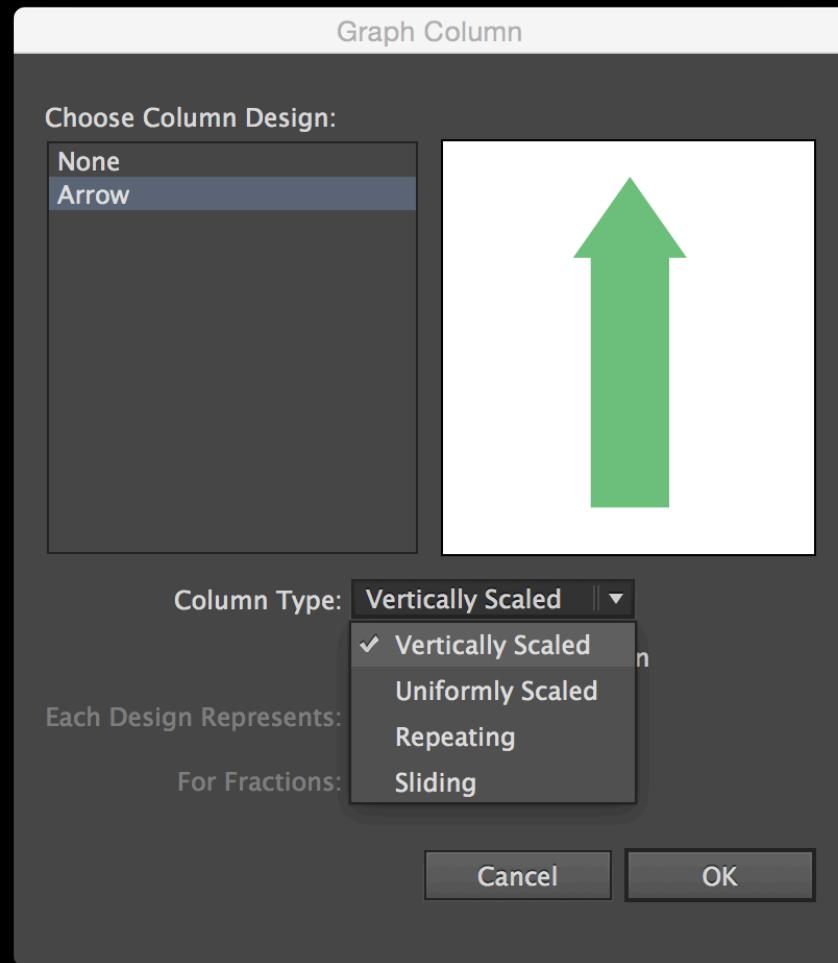
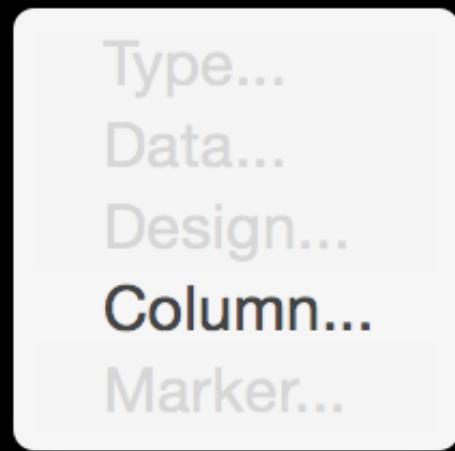
# Adobe Illustrator

## Graphing Tool Design



# Adobe Illustrator

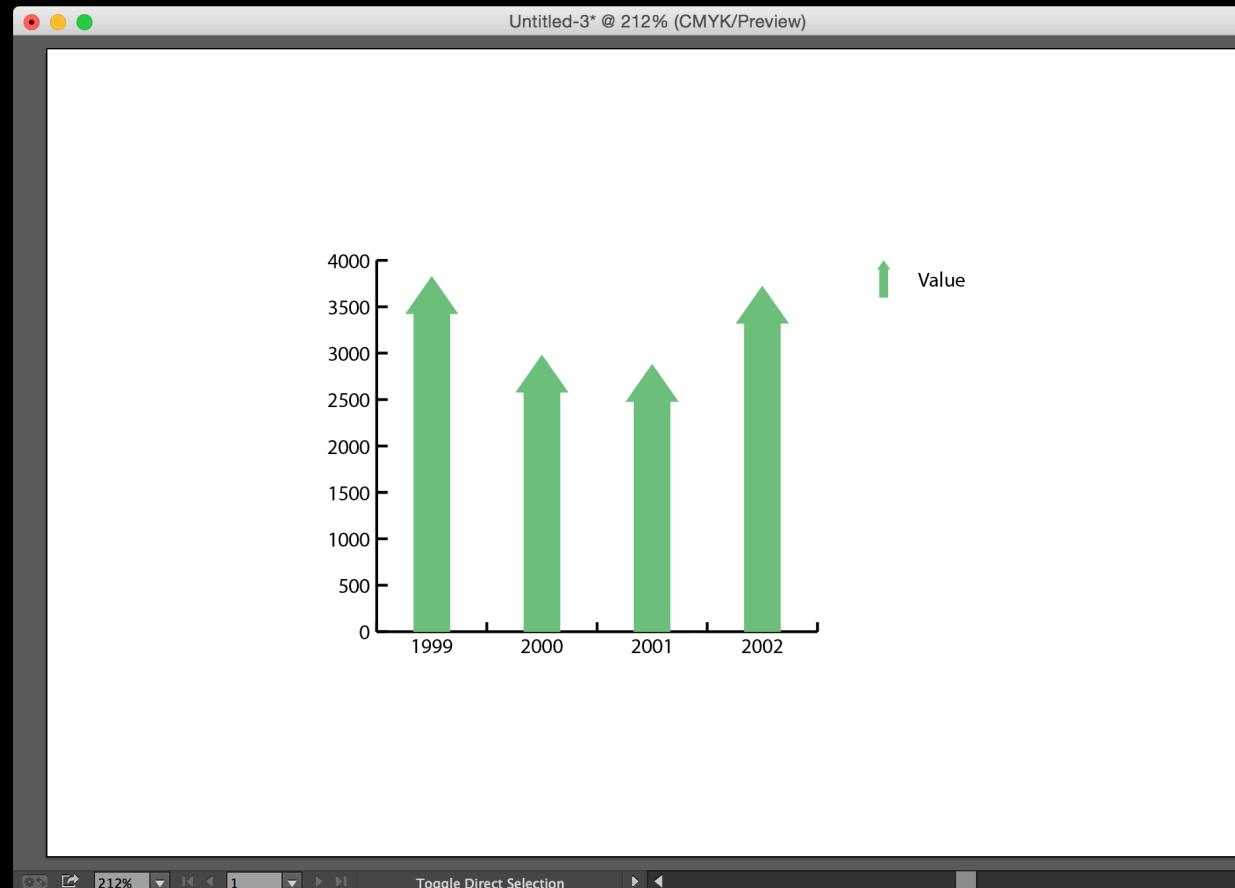
## Graphing Tool Column



# Adobe Illustrator

## Graphing Tool Column

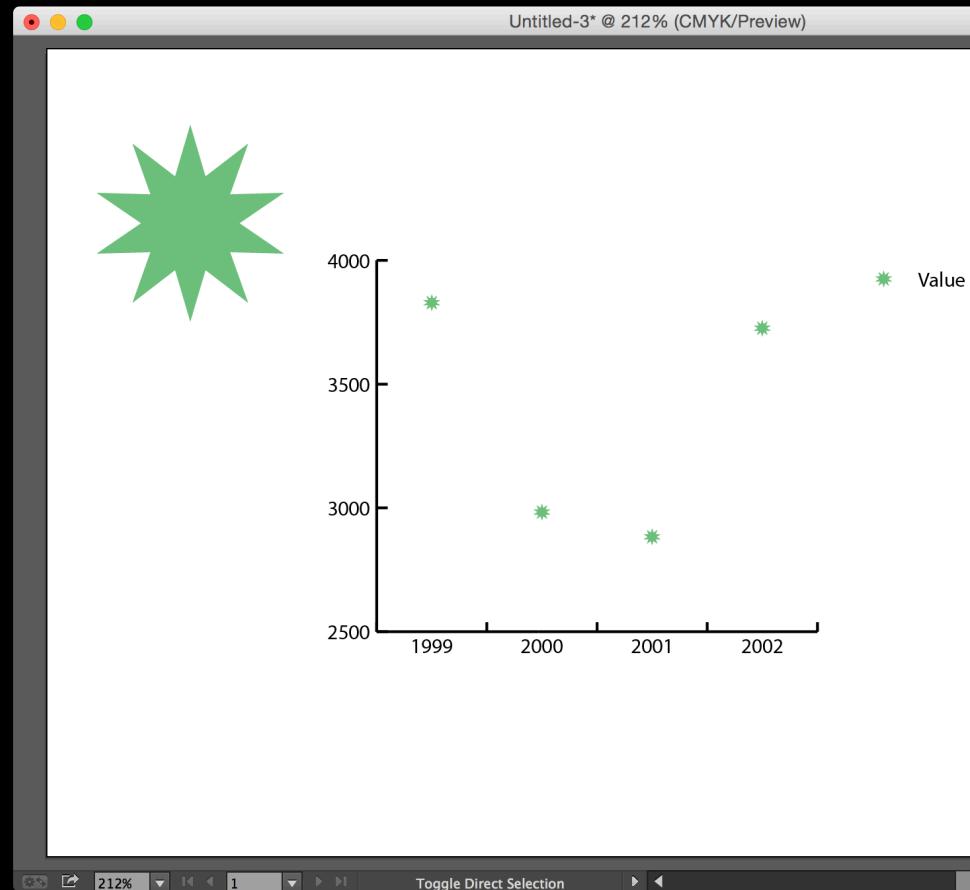
Vertically Scaled  
Uniformly Scaled  
Repeating  
Sliding



# Adobe Illustrator

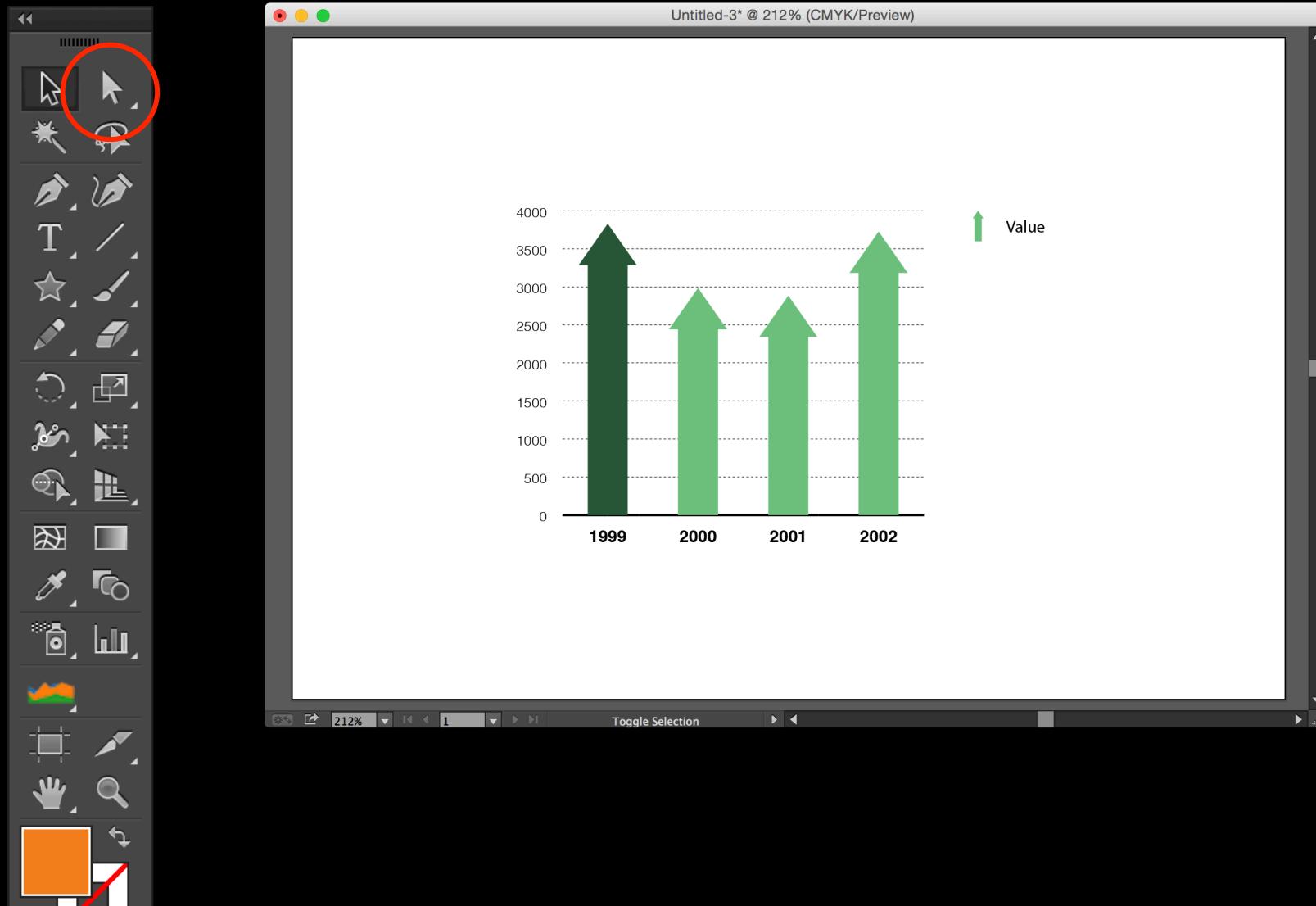
## Graphing Tool Marker

Type...  
Data...  
Design...  
Column...  
**Marker...**



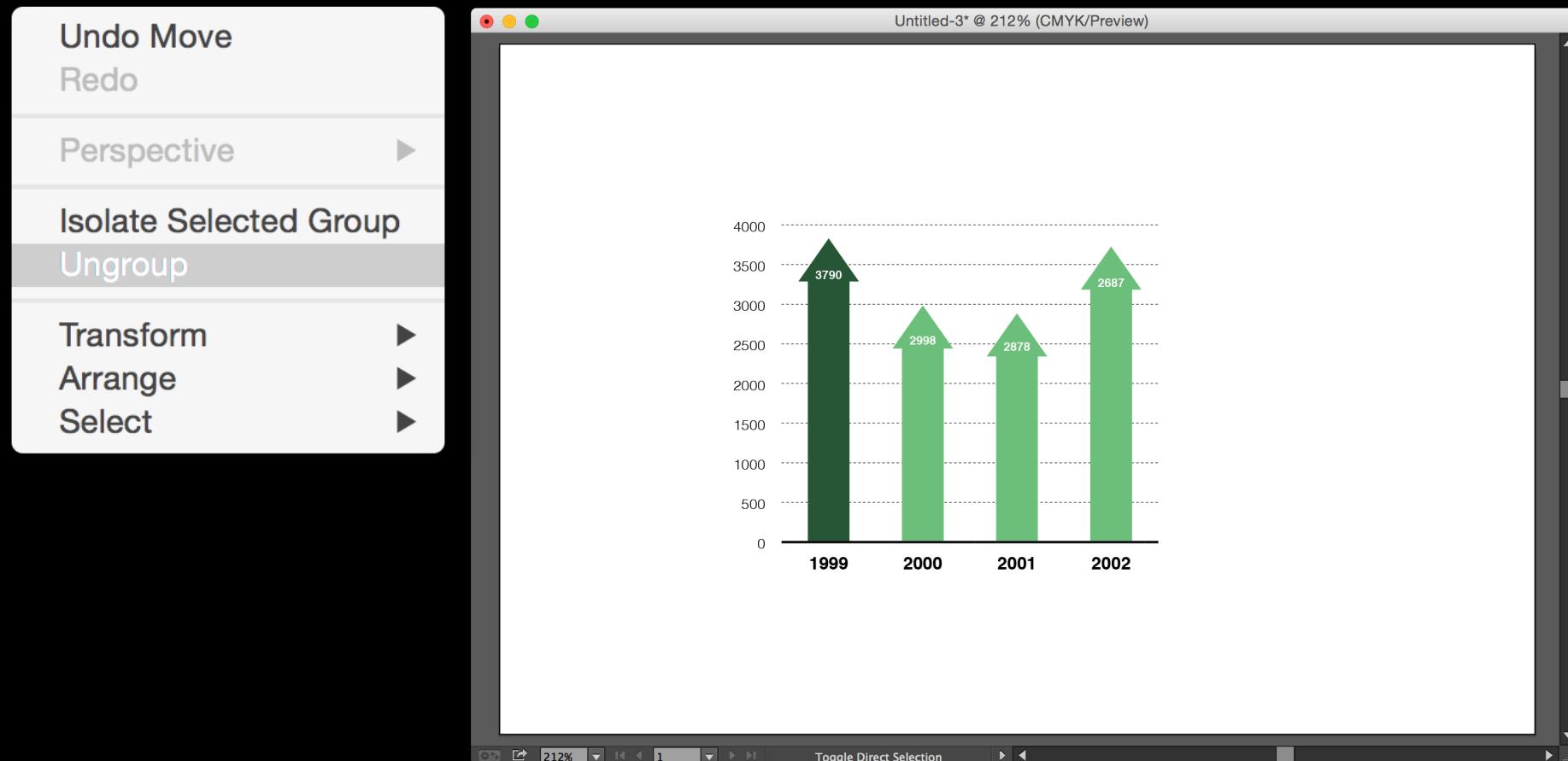
# Adobe Illustrator

## Modifications



# Adobe Illustrator

## Further Modifications

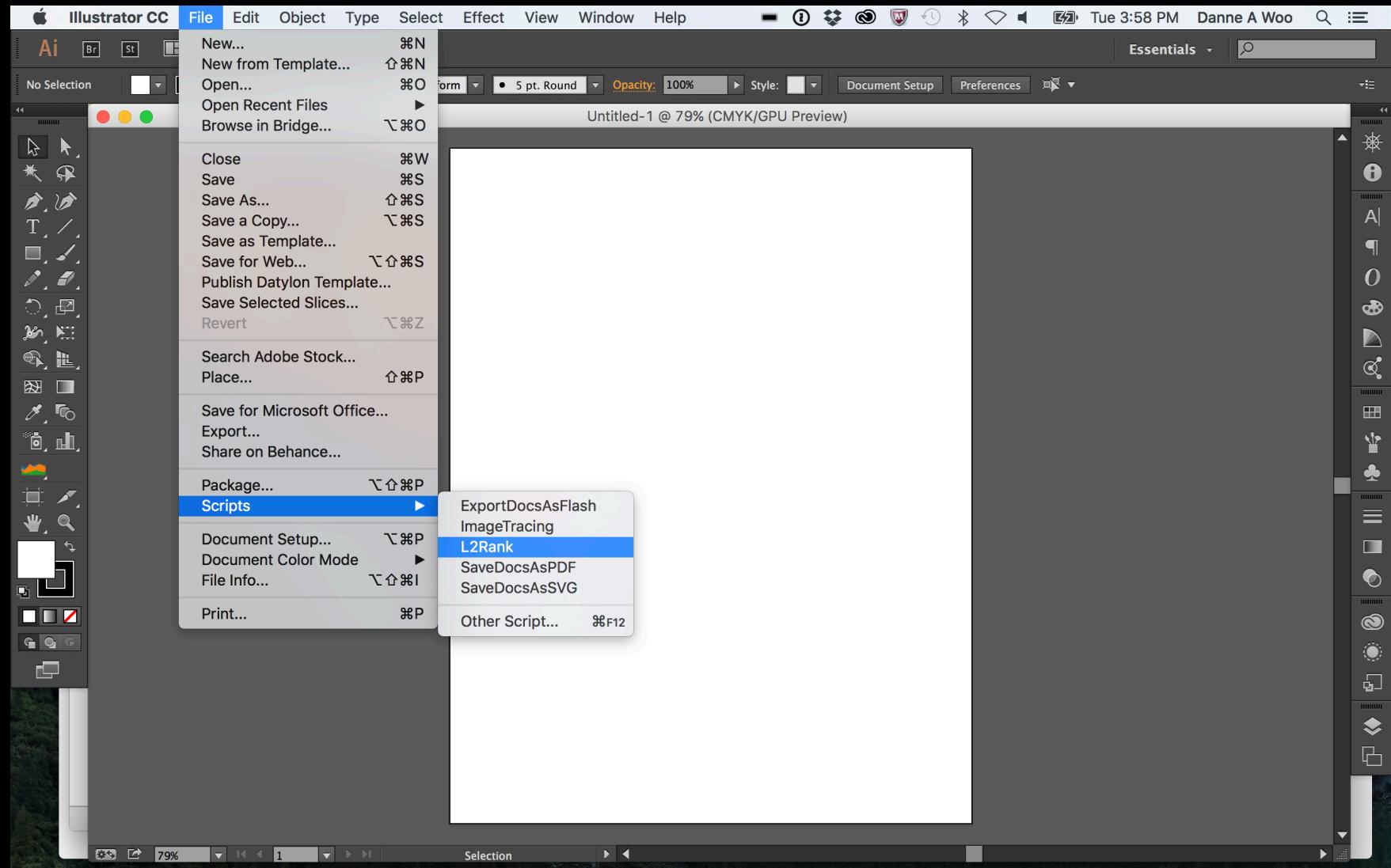


# Adobe Illustrator

## Negatives

- Limited to the software's abilities.
- Can't visualize more complex visualizations like maps, connected nodes, etc.
- If you need to ungroup the graph you can not modify the data.
- No value labels.
- Not great for batch projects.

# Adobe Scripts



# Adobe Scripts

```
var doc = documents.add();
var color = new RGBColor();
color.red = 255;
color.green = 100;
color.blue = 0;

var text = doc.textFrames.add();
text.contents = "Hello class!";
text.textRange.characterAttributes.size = 24;
text.top = 400;
text.left = 200;

var rect = doc.pathItems.rectangle(200, 400, 100, 50);
rect.fillColor = color;
```

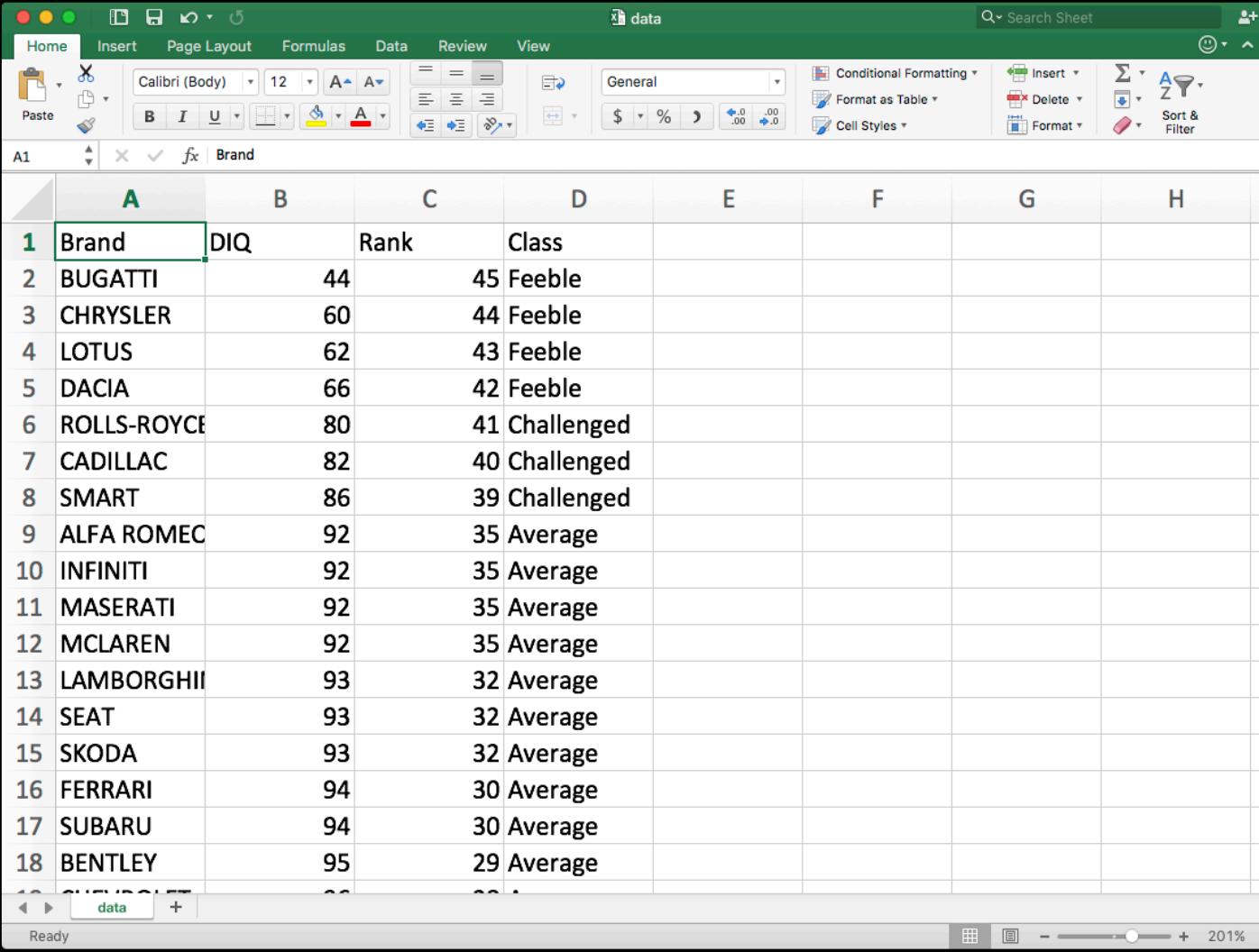
# Adobe Scripts



GIFTED

43	• Kat Von D •	110
40	Murad.	112
40	laura mercier	112
40	CLARINS	112
38	clarisonic	113
38	Charlotte Tilbury	113
36	proactiv.	114
36	GARNIER	114
35	elf	115
32	SHISEIDO	116
32	MAKE UP FOR EVER PROFESSIONAL	116
32	AVEDA	116

# Adobe Scripts

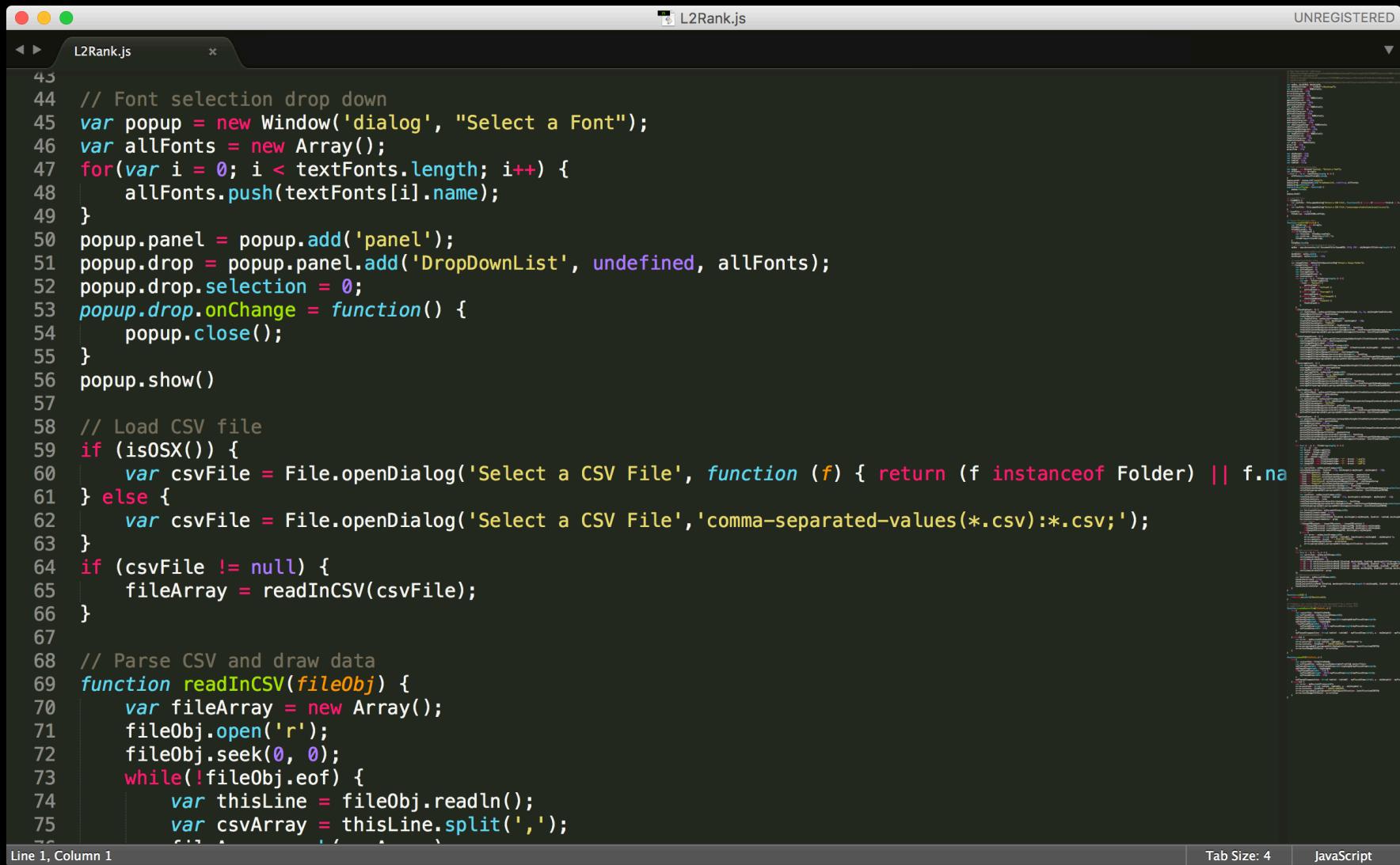


The screenshot shows a spreadsheet application window titled "data". The interface includes a ribbon bar with tabs like Home, Insert, Page Layout, Formulas, Data, Review, and View. The Home tab is selected. The toolbar contains various icons for operations such as Paste, Cut, Copy, Bold, Italic, Underline, Alignment, Number Format, Conditional Formatting, Insert, Delete, Cell Styles, and Sort & Filter.

The spreadsheet contains a table with the following data:

	A	B	C	D	E	F	G	H
1	Brand	DIQ	Rank	Class				
2	BUGATTI	44	45	Feeble				
3	CHRYSLER	60	44	Feeble				
4	LOTUS	62	43	Feeble				
5	DACIA	66	42	Feeble				
6	ROLLS-ROYCE	80	41	Challenged				
7	CADILLAC	82	40	Challenged				
8	SMART	86	39	Challenged				
9	ALFA ROMEC	92	35	Average				
10	INFINITI	92	35	Average				
11	MASERATI	92	35	Average				
12	MCLAREN	92	35	Average				
13	LAMBORGHII	93	32	Average				
14	SEAT	93	32	Average				
15	SKODA	93	32	Average				
16	FERRARI	94	30	Average				
17	SUBARU	94	30	Average				
18	BENTLEY	95	29	Average				
19	OUTDOOR	95	28	Average				

# Adobe Scripts



The screenshot shows a code editor window titled "L2Rank.js" with the status bar indicating "UNREGISTERED". The code is written in Adobe JavaScript, which is a subset of JavaScript designed for use within the Adobe Creative Suite. The code handles font selection, CSV file loading, and CSV parsing.

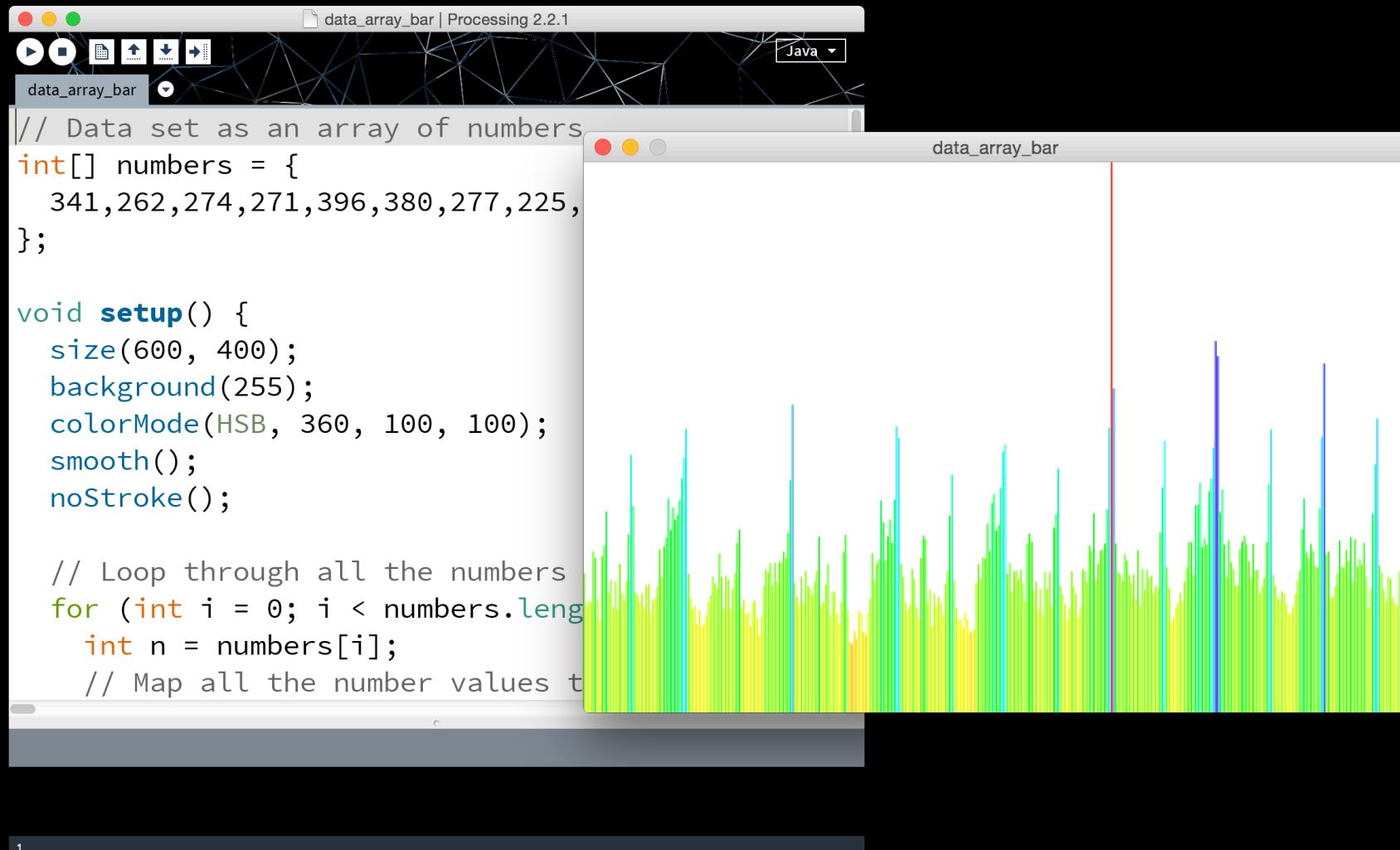
```
43 // Font selection drop down
44 var popup = new Window('dialog', "Select a Font");
45 var allFonts = new Array();
46 for(var i = 0; i < textFonts.length; i++) {
47     allFonts.push(textFonts[i].name);
48 }
49 popup.panel = popup.add('panel');
50 popup.drop = popup.panel.add('DropDownList', undefined, allFonts);
51 popup.drop.selection = 0;
52 popup.drop.onChange = function() {
53     popup.close();
54 }
55 popup.show()
56
57 // Load CSV file
58 if (isOSX()) {
59     var csvFile = File.openDialog('Select a CSV File', function (f) { return (f instanceof Folder) || f.name.endsWith('.csv'); });
60 } else {
61     var csvFile = File.openDialog('Select a CSV File', 'comma-separated-values(*.csv):*.csv;');
62 }
63 if (csvFile != null) {
64     fileArray = readInCSV(csvFile);
65 }
66
67 // Parse CSV and draw data
68 function readInCSV(fileObj) {
69     var fileArray = new Array();
70     fileObj.open('r');
71     fileObj.seek(0, 0);
72     while(!fileObj.eof) {
73         var thisLine = fileObj.readln();
74         var csvArray = thisLine.split(',');
75         fileArray.push(csvArray);
76     }
77 }
78
79
80
81
82
83
84
85
86
87
88
89
90
91
92
93
94
95
96
97
98
99
100
101
102
103
104
105
106
107
108
109
110
111
112
113
114
115
116
117
118
119
120
121
122
123
124
125
126
127
128
129
130
131
132
133
134
135
136
137
138
139
140
141
142
143
144
145
146
147
148
149
150
151
152
153
154
155
156
157
158
159
160
161
162
163
164
165
166
167
168
169
170
171
172
173
174
175
176
177
178
179
180
181
182
183
184
185
186
187
188
189
190
191
192
193
194
195
196
197
198
199
200
201
202
203
204
205
206
207
208
209
210
211
212
213
214
215
216
217
218
219
220
221
222
223
224
225
226
227
228
229
230
231
232
233
234
235
236
237
238
239
240
241
242
243
244
245
246
247
248
249
250
251
252
253
254
255
256
257
258
259
259
260
261
262
263
264
265
266
267
268
269
270
271
272
273
274
275
276
277
278
279
279
280
281
282
283
284
285
286
287
288
289
289
290
291
292
293
294
295
296
297
298
299
299
300
301
302
303
304
305
306
307
308
309
309
310
311
312
313
314
315
316
317
318
319
319
320
321
322
323
324
325
326
327
328
329
329
330
331
332
333
334
335
336
337
338
339
339
340
341
342
343
344
345
346
347
348
349
349
350
351
352
353
354
355
356
357
358
359
359
360
361
362
363
364
365
366
367
368
369
369
370
371
372
373
374
375
376
377
378
379
379
380
381
382
383
384
385
386
387
388
389
389
390
391
392
393
394
395
396
397
398
399
399
400
401
402
403
404
405
406
407
408
409
409
410
411
412
413
414
415
416
417
418
419
419
420
421
422
423
424
425
426
427
428
429
429
430
431
432
433
434
435
436
437
438
439
439
440
441
442
443
444
445
446
447
448
449
449
450
451
452
453
454
455
456
457
458
459
459
460
461
462
463
464
465
466
467
468
469
469
470
471
472
473
474
475
476
477
478
479
479
480
481
482
483
484
485
486
487
488
489
489
490
491
492
493
494
495
496
497
498
499
499
500
501
502
503
504
505
506
507
508
509
509
510
511
512
513
514
515
516
517
518
519
519
520
521
522
523
524
525
526
527
528
529
529
530
531
532
533
534
535
536
537
538
539
539
540
541
542
543
544
545
546
547
548
549
549
550
551
552
553
554
555
556
557
558
559
559
560
561
562
563
564
565
566
567
568
569
569
570
571
572
573
574
575
576
577
578
579
579
580
581
582
583
584
585
586
587
588
589
589
590
591
592
593
594
595
596
597
598
599
599
600
601
602
603
604
605
606
607
608
609
609
610
611
612
613
614
615
616
617
618
619
619
620
621
622
623
624
625
626
627
628
629
629
630
631
632
633
634
635
636
637
638
639
639
640
641
642
643
644
645
646
647
648
649
649
650
651
652
653
654
655
656
657
658
659
659
660
661
662
663
664
665
666
667
668
669
669
670
671
672
673
674
675
676
677
678
679
679
680
681
682
683
684
685
686
687
688
689
689
690
691
692
693
694
695
696
697
697
698
699
700
701
702
703
704
705
706
707
708
709
709
710
711
712
713
714
715
716
717
718
719
719
720
721
722
723
724
725
726
727
728
729
729
730
731
732
733
734
735
736
737
738
739
739
740
741
742
743
744
745
746
747
748
749
749
750
751
752
753
754
755
756
757
758
759
759
760
761
762
763
764
765
766
767
768
769
769
770
771
772
773
774
775
776
777
778
779
779
780
781
782
783
784
785
786
787
788
789
789
790
791
792
793
794
795
796
797
797
798
799
800
801
802
803
804
805
806
807
808
809
809
810
811
812
813
814
815
816
817
818
819
819
820
821
822
823
824
825
826
827
828
829
829
830
831
832
833
834
835
836
837
838
839
839
840
841
842
843
844
845
846
847
848
849
849
850
851
852
853
854
855
856
857
858
859
859
860
861
862
863
864
865
866
867
868
869
869
870
871
872
873
874
875
876
877
878
879
879
880
881
882
883
884
885
886
887
888
888
889
889
890
891
892
893
894
895
896
897
898
898
899
900
901
902
903
904
905
906
907
908
909
909
910
911
912
913
914
915
916
917
918
919
919
920
921
922
923
924
925
926
927
928
929
929
930
931
932
933
934
935
936
937
938
939
939
940
941
942
943
944
945
946
947
948
948
949
950
951
952
953
954
955
956
957
958
958
959
960
961
962
963
964
965
966
967
968
969
969
970
971
972
973
974
975
976
977
978
979
979
980
981
982
983
984
985
986
987
987
988
989
989
990
991
992
993
994
995
996
997
998
999
999
1000
1000
1001
1002
1003
1004
1005
1006
1007
1008
1009
1009
1010
1011
1012
1013
1014
1015
1016
1017
1018
1019
1019
1020
1021
1022
1023
1024
1025
1026
1027
1028
1029
1029
1030
1031
1032
1033
1034
1035
1036
1037
1038
1039
1039
1040
1041
1042
1043
1044
1045
1046
1047
1048
1048
1049
1050
1051
1052
1053
1054
1055
1056
1057
1058
1059
1059
1060
1061
1062
1063
1064
1065
1066
1067
1068
1069
1069
1070
1071
1072
1073
1074
1075
1076
1077
1078
1079
1079
1080
1081
1082
1083
1084
1085
1086
1087
1088
1088
1089
1090
1091
1092
1093
1094
1095
1096
1096
1097
1098
1099
1099
1100
1101
1102
1103
1104
1105
1106
1107
1108
1109
1109
1110
1111
1112
1113
1114
1115
1116
1117
1118
1119
1119
1120
1121
1122
1123
1124
1125
1126
1127
1128
1129
1129
1130
1131
1132
1133
1134
1135
1136
1137
1138
1139
1139
1140
1141
1142
1143
1144
1145
1146
1147
1148
1148
1149
1150
1151
1152
1153
1154
1155
1156
1157
1158
1159
1159
1160
1161
1162
1163
1164
1165
1166
1167
1168
1169
1169
1170
1171
1172
1173
1174
1175
1176
1177
1178
1179
1179
1180
1181
1182
1183
1184
1185
1186
1187
1188
1188
1189
1190
1191
1192
1193
1194
1195
1195
1196
1197
1198
1199
1199
1200
1201
1202
1203
1204
1205
1206
1207
1208
1209
1209
1210
1211
1212
1213
1214
1215
1216
1217
1218
1219
1219
1220
1221
1222
1223
1224
1225
1226
1227
1228
1229
1229
1230
1231
1232
1233
1234
1235
1236
1237
1238
1239
1239
1240
1241
1242
1243
1244
1245
1246
1247
1248
1248
1249
1250
1251
1252
1253
1254
1255
1256
1257
1258
1259
1259
1260
1261
1262
1263
1264
1265
1266
1267
1268
1269
1269
1270
1271
1272
1273
1274
1275
1276
1277
1278
1279
1279
1280
1281
1282
1283
1284
1285
1286
1287
1288
1288
1289
1290
1291
1292
1293
1294
1295
1296
1296
1297
1298
1299
1299
1300
1301
1302
1303
1304
1305
1306
1307
1308
1309
1309
1310
1311
1312
1313
1314
1315
1316
1317
1318
1319
1319
1320
1321
1322
1323
1324
1325
1326
1327
1328
1329
1329
1330
1331
1332
1333
1334
1335
1336
1337
1338
1339
1339
1340
1341
1342
1343
1344
1345
1346
1347
1348
1348
1349
1350
1351
1352
1353
1354
1355
1356
1357
1358
1359
1359
1360
1361
1362
1363
1364
1365
1366
1367
1368
1369
1369
1370
1371
1372
1373
1374
1375
1376
1377
1378
1379
1379
1380
1381
1382
1383
1384
1385
1386
1387
1388
1388
1389
1390
1391
1392
1393
1394
1395
1396
1396
1397
1398
1399
1399
1400
1401
1402
1403
1404
1405
1406
1407
1408
1409
1409
1410
1411
1412
1413
1414
1415
1416
1417
1418
1419
1419
1420
1421
1422
1423
1424
1425
1426
1427
1428
1429
1429
1430
1431
1432
1433
1434
1435
1436
1437
1438
1439
1439
1440
1441
1442
1443
1444
1445
1446
1447
1448
1448
1449
1450
1451
1452
1453
1454
1455
1456
1457
1458
1459
1459
1460
1461
1462
1463
1464
1465
1466
1467
1468
1469
1469
1470
1471
1472
1473
1474
1475
1476
1477
1478
1479
1479
1480
1481
1482
1483
1484
1485
1486
1487
1488
1488
1489
1490
1491
1492
1493
1494
1495
1496
1496
1497
1498
1499
1499
1500
1501
1502
1503
1504
1505
1506
1507
1508
1509
1509
1510
1511
1512
1513
1514
1515
1516
1517
1518
1519
1519
1520
1521
1522
1523
1524
1525
1526
1527
1528
1529
1529
1530
1531
1532
1533
1534
1535
1536
1537
1538
1539
1539
1540
1541
1542
1543
1544
1545
1546
1547
1548
1548
1549
1550
1551
1552
1553
1554
1555
1556
1557
1558
1559
1559
1560
1561
1562
1563
1564
1565
1566
1567
1568
1569
1569
1570
1571
1572
1573
1574
1575
1576
1577
1578
1579
1579
1580
1581
1582
1583
1584
1585
1586
1587
1588
1588
1589
1590
1591
1592
1593
1594
1595
1596
1596
1597
1598
1599
1599
1600
1601
1602
1603
1604
1605
1606
1607
1608
1609
1609
1610
1611
1612
1613
1614
1615
1616
1617
1618
1619
1619
1620
1621
1622
1623
1624
1625
1626
1627
1628
1629
1629
1630
1631
1632
1633
1634
1635
1636
1637
1638
1639
1639
1640
1641
1642
1643
1644
1645
1646
1647
1648
1648
1649
1650
1651
1652
1653
1654
1655
1656
1657
1658
1659
1659
1660
1661
1662
1663
1664
1665
1666
1667
1668
1669
1669
1670
1671
1672
1673
1674
1675
1676
1677
1678
1679
1679
1680
1681
1682
1683
1684
1685
1686
1687
1688
1688
1689
1690
1691
1692
1693
1694
1695
1696
1696
1697
1698
1699
1699
1700
1701
1702
1703
1704
1705
1706
1707
1708
1709
1709
1710
1711
1712
1713
1714
1715
1716
1717
1718
1719
1719
1720
1721
1722
1723
1724
1725
1726
1727
1728
1729
1729
1730
1731
1732
1733
1734
1735
1736
1737
1738
1739
1739
1740
1741
1742
1743
1744
1745
1746
1747
1748
1748
1749
1750
1751
1752
1753
1754
1755
1756
1757
1758
1759
1759
1760
1761
1762
1763
1764
1765
1766
1767
1768
1769
1769
1770
1771
1772
1773
1774
1775
1776
1777
1778
1779
1779
1780
1781
1782
1783
1784
1785
1786
1787
1788
1788
1789
1790
1791
1792
1793
1794
1795
1796
1796
1797
1798
1799
1799
1800
1801
1802
1803
1804
1805
1806
1807
1808
1809
1809
1810
1811
1812
1813
1814
1815
1816
1817
1818
1819
1819
1820
1821
1822
1823
1824
1825
1826
1827
1828
1829
1829
1830
1831
1832
1833
1834
1835
1836
1837
1838
1839
1839
1840
1841
1842
1843
1844
1845
1846
1847
1848
1848
1849
1850
1851
1852
1853
1854
1855
1856
1857
1858
1859
1859
1860
1861
1862
1863
1864
1865
1866
1867
1868
1869
1869
1870
1871
1872
1873
1874
1875
1876
1877
1878
1879
1879
1880
1881
1882
1883
1884
1885
1886
1887
1888
1888
1889
1890
1891
1892
1893
1894
1895
1896
1896
1897
1898
1899
1899
1900
1901
1902
1903
1904
1905
1906
1907
1908
1909
1909
1910
1911
1912
1913
1914
1915
1916
1917
1918
1919
1919
1920
1921
1922
1923
1924
1925
1926
1927
1928
1929
1929
1930
1931
1932
1933
1934
1935
1936
1937
1938
1939
1939
1940
1941
1942
1943
1944
1945
1946
1947
1948
1948
1949
1950
1951
1952
1953
1954
1955
1956
1957
1958
1959
1959
1960
1961
1962
1963
1964
1965
1966
1967
1968
1969
1969
1970
1971
1972
1973
1974
1975
1976
1977
1978
1979
1979
1980
1981
1982
1983
1984
1985
1986
1987
1988
1988
1989
1989
1990
1991
1992
1993
1994
1995
1996
1997
1998
1999
1999
2000
2001
2002
2003
2004
2005
2006
2007
2008
2009
2009
2010
2011
2012
2013
2014
2015
2016
2017
2018
2019
2019
2020
2021
2022
2023
2024
2025
2026
2027
2028
2029
2029
2030
2031
2032
2033
2034
2035
2036
2037
2038
2039
2039
2040
2041
2042
2043
2044
2045
2046
2047
2048
2048
2049
2050
2051
2052
2053
2054
2055
2056
2057
2058
2059
2059
2060
2061
2062
2063
2064
2065
2066
2067
2068
2069
2069
2070
2071
2072
2073
2074
2075
2076
2077
2078
2079
2079
2080
2081
2082
2083
2084
2085
2086
2087
2088
2088
2089
2089
2090
2091
2092
2093
2094
2095
2096
2097
2097
2098
2099
2099
2100
2101
2102
2103
2104
2105
2106
2107
2108
2109
2109
2110
2111
2112
2113
2114
2115
2116
2117
2118
2119
2119
2120
2121
2122
2123
2124
2125
2126
2127
2128
2129
2129
2130
2131
2132
2133
2134
2135
2136
2137
2138
2139
2139
2140
2141
2142
2143
2144
2145
2146
2147
2148
2148
2149
2150
2151
2152
2153
2154
2155
2156
2157
2158
2159
2159
2160
2161
2162
2163
2164
2165
2166
2167
2168
2169
2169
2170
2171
2172
2173
2174
2175
2176
2177
2178
2179
2179
2180
2181
2182
2183
2184
2185
2186
2187
2188
2188
2189
2189
2190
2191
2192
2193
2194
2195
2196
2197
2197
2198
2199
2199
2200
2201
2202
2203
2204
2205
2206
2207
2208
2209
2209
2210
2211
2212
2213
2214
2215
2216
2217
2218
2219
2219
2220
2221
2222
2223
2224
2225
2226
2227
2228
2229
2229
2230
2231
2232
2233
2234
2235
2236
2237
2238
2239
2239
2240
2241
2242
2243
2244
2245
2246
2247
2248
2248
2249
2250
2251
2252
2253
2254
2255
2256
2257
2258
2259
2259
2260
2261
2262
2263
2264
2265
2266
2267
2268
2269
2269
2270
2271
2272
2273
2274
2275
2276
2277
2278
2279
2279
2280
2281
2282
2283
2284
2285
2286
2287
2288
2288
2289
2289
2290
2291
2292
2293
2294
2295
2296
2297
2297
2298
2299
2299
2300
2301
2302
2303
2304
2305
2306
2307
2308
2309
2309
2310
2311
2312
2313
2314
2315
2316
2317
2318
2319
2319
2320
2321
2322
2323
2324
2325
2326
2327
2328
2329
2329
2330
2331
2332
2333
2334
2335
2336
2337
2338
2339
2339
2340
2341
2342
2343
2344
2345
2346
2347
2348
2348
2349
2350
2351
2352
2353
2354
2355
2356
2357
2358
2359
2359
2360
2361
2362
2363
2364
2365
2366
2367
2368
2369
2369
2370
2371
2372
2373
2374
2375
2376
2377
2378
2379
2379
2380
2381
2382
2383
2384
2385
2386
2387
2388
2388
2389
2389
2390
2391
```

# Processing

[www.processing.org](http://www.processing.org)



# Data + Processing



The image shows the Processing IDE interface with two windows. The left window is the code editor for the sketch 'data\_array\_bar'. The right window is the preview window showing the resulting visual output.

**Code Editor (data\_array\_bar):**

```
// Data set as an array of numbers
int[] numbers = {
    341, 262, 274, 271, 396, 380, 277, 225,
};

void setup() {
    size(600, 400);
    background(255);
    colorMode(HSB, 360, 100, 100);
    smooth();
    noStroke();
}

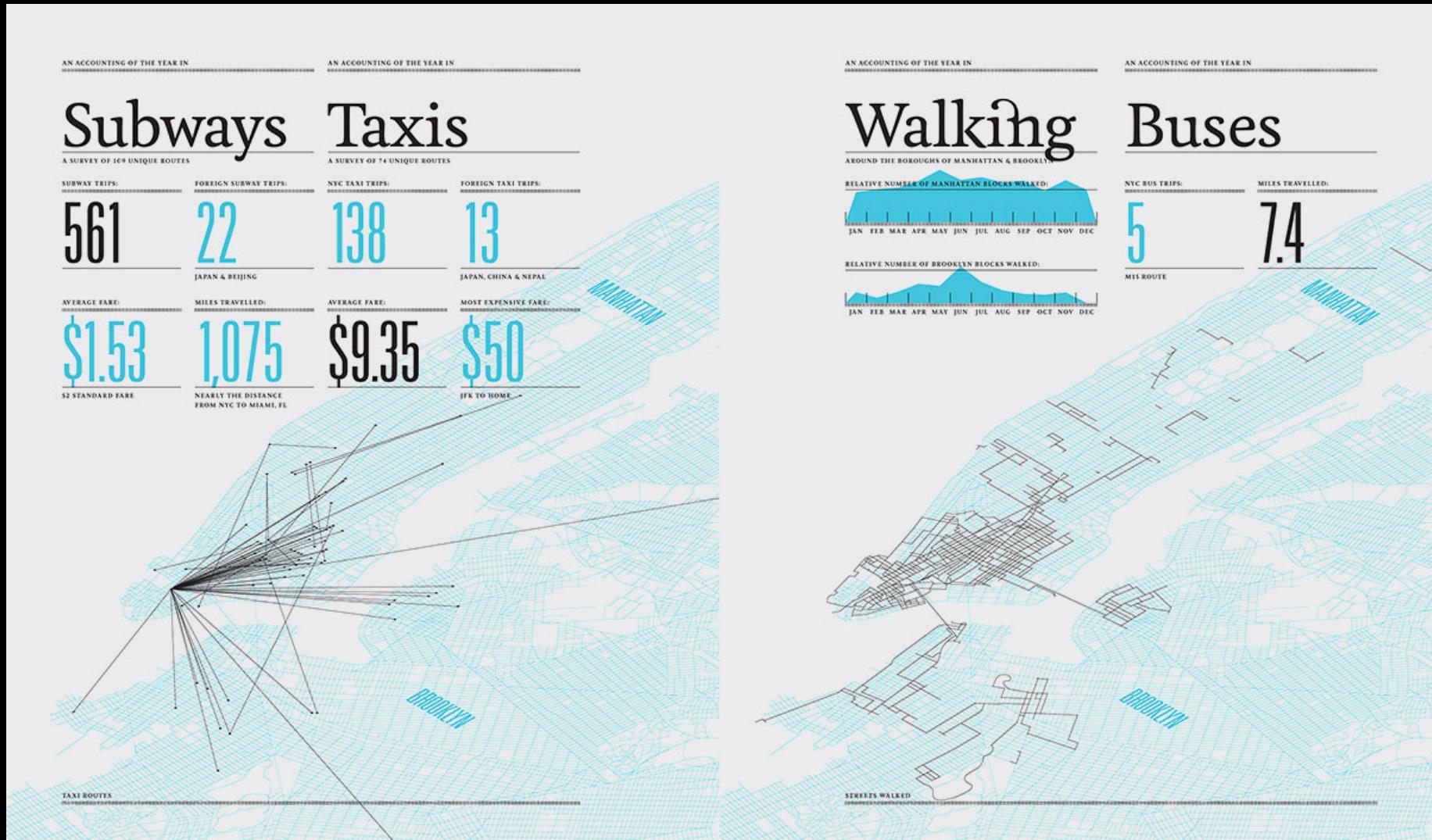
// Loop through all the numbers
for (int i = 0; i < numbers.length;
    int n = numbers[i];
    // Map all the number values to a range
    float mappedN = map(n, 0, numbers.length, 0, 100);
    // Draw a bar at position i with height mappedN
    bar(i, 0, 10, mappedN);
}
```

**Preview Window:**

The preview window displays a bar chart with approximately 100 bars. The bars are colored in a gradient from green to blue. A single red vertical line is drawn across the chart, positioned roughly in the middle. The bars have varying heights, with some reaching near the top of the chart area.

# Examples

Nicholas Felton – Annual Reports

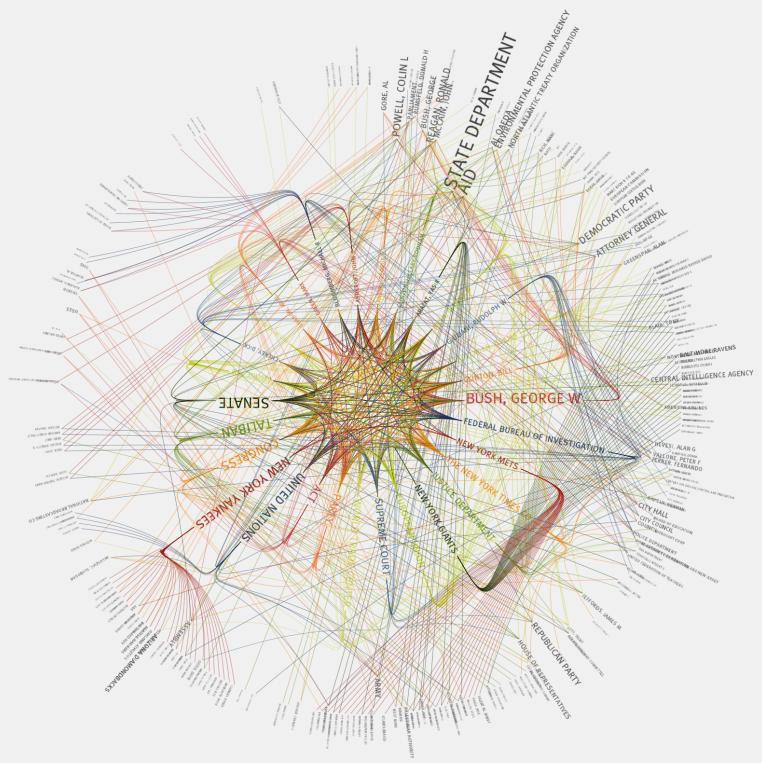
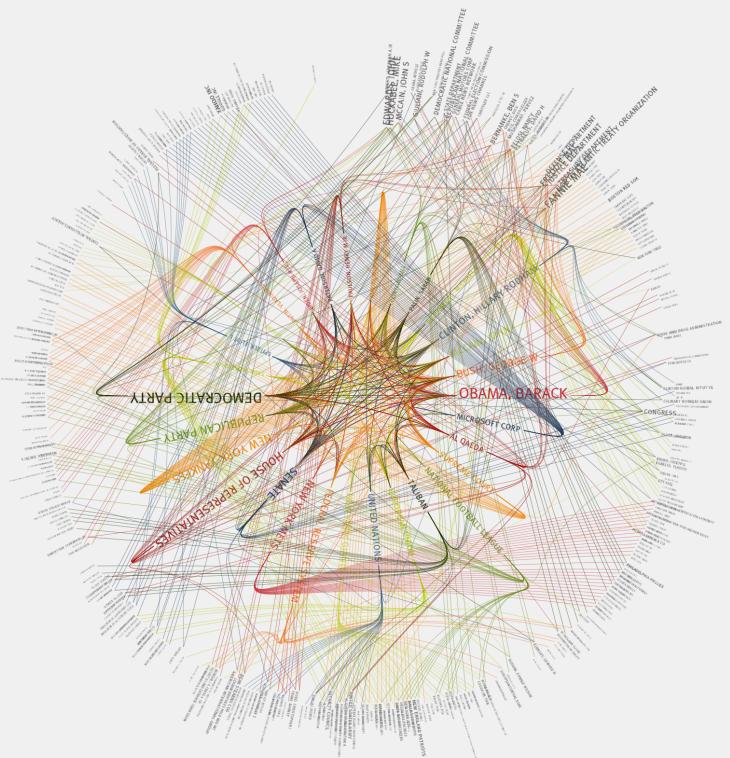


# Examples

Jer Thorp – NY Times Posters

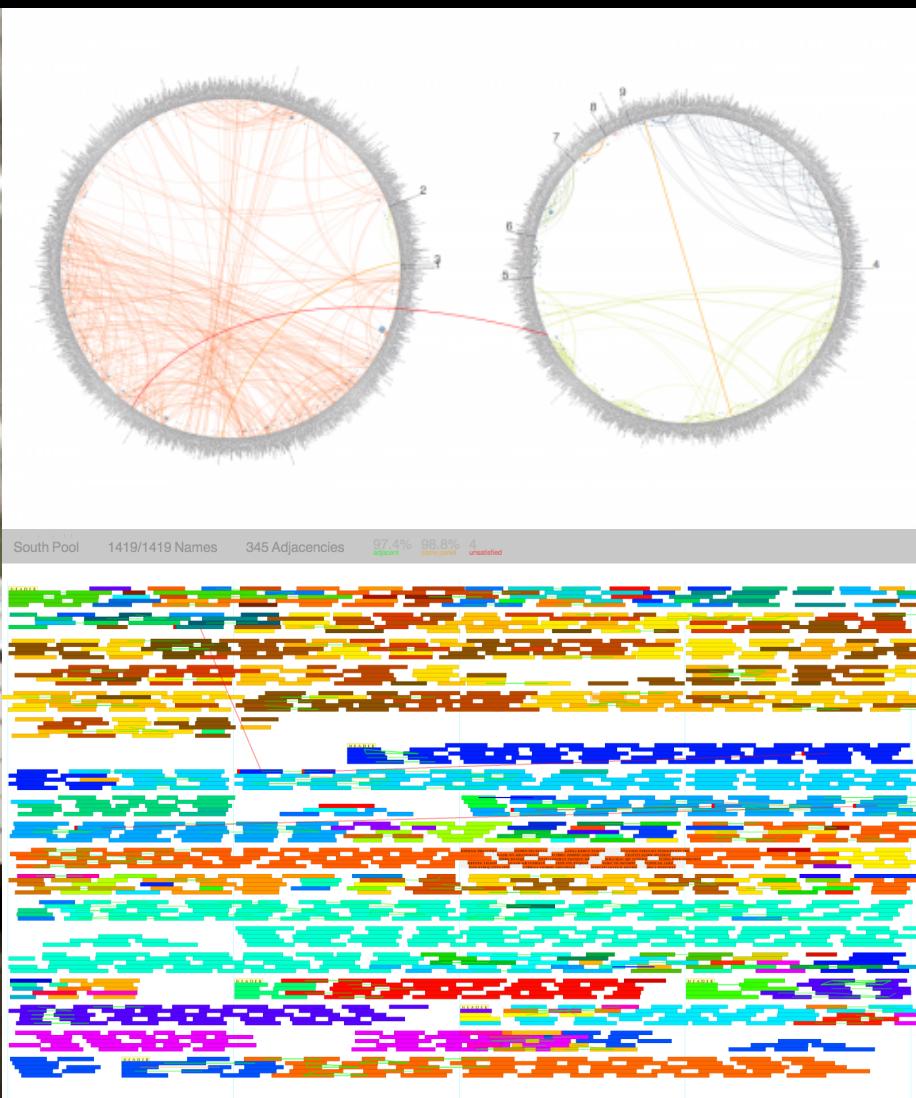
2008

2001



# Examples

Jer Thorp – 9/11 Memorial



# Examples

Unnamed Sound Sculpture

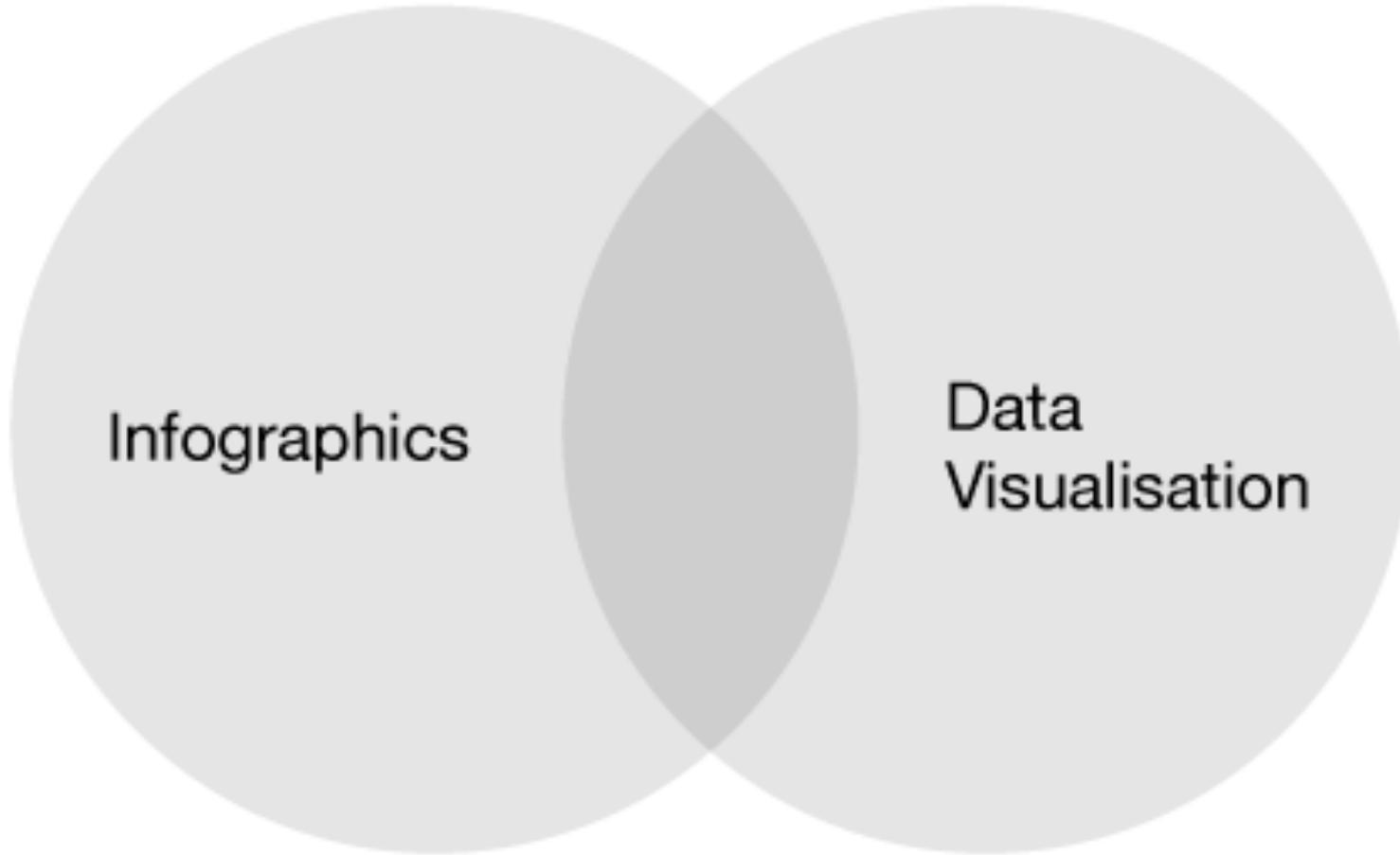


# Examples

Kyle McDonald – Face Substitution



# Data Viz vs Infographics

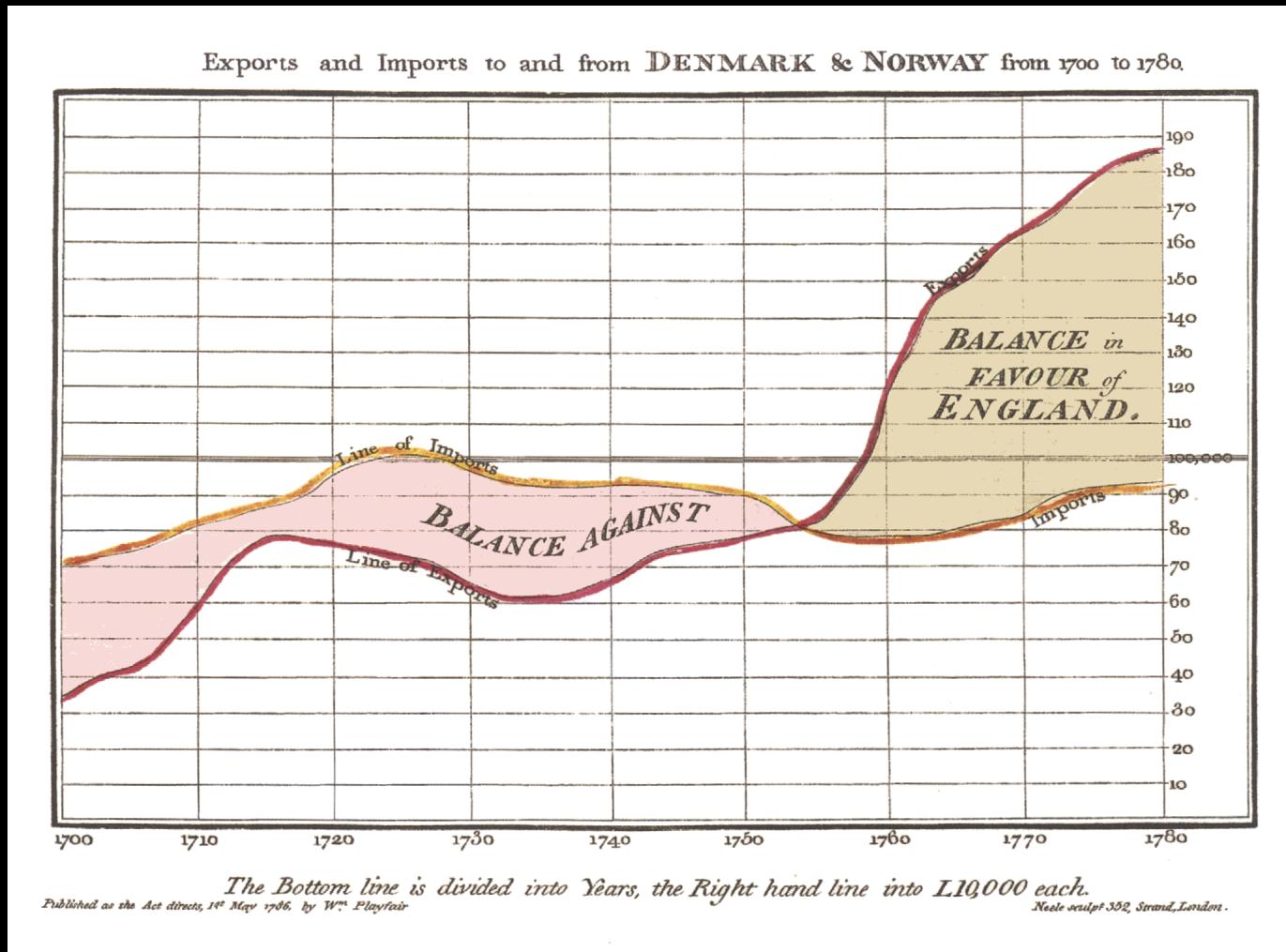


# Data Visualization

Data Visualization is the presentation of data in a visual format.

# Data Visualization

William Playfair

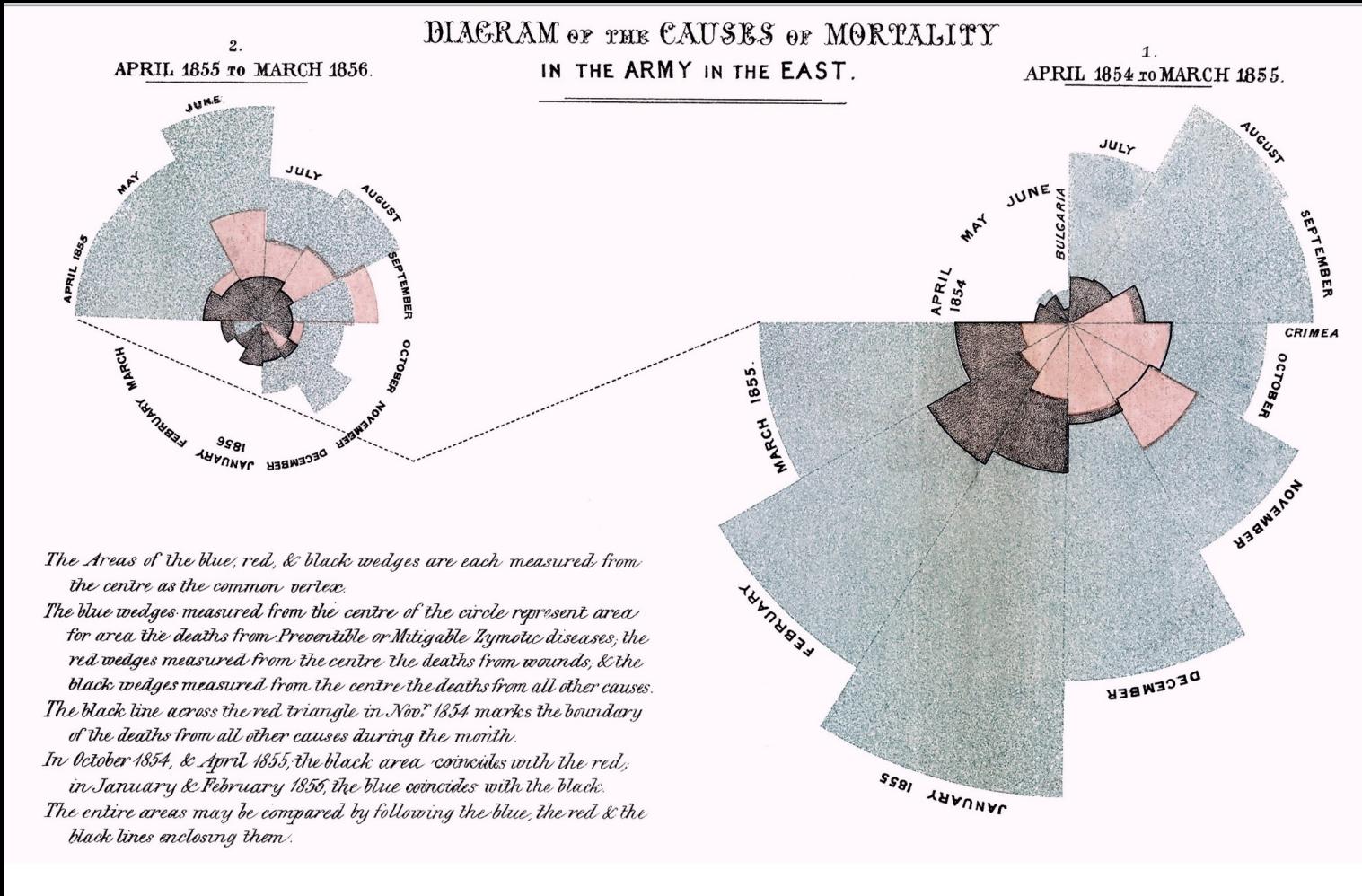


# Infographic

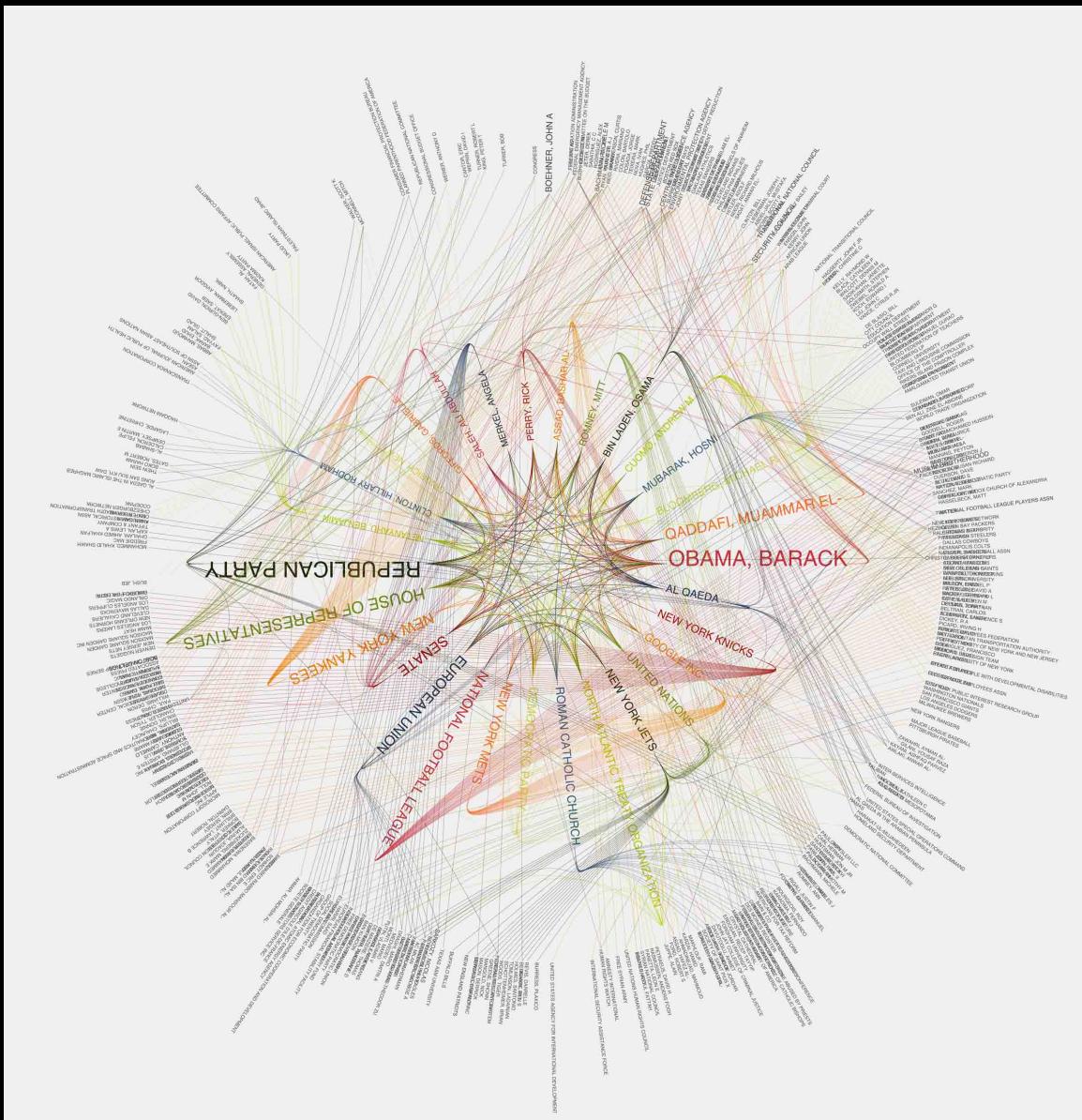
Infographics or information graphics are graphic visual representations of information, data or knowledge intended to present information quickly and clearly.

# Infographic

## Florence Nightingale



# Infographic or Data Viz?



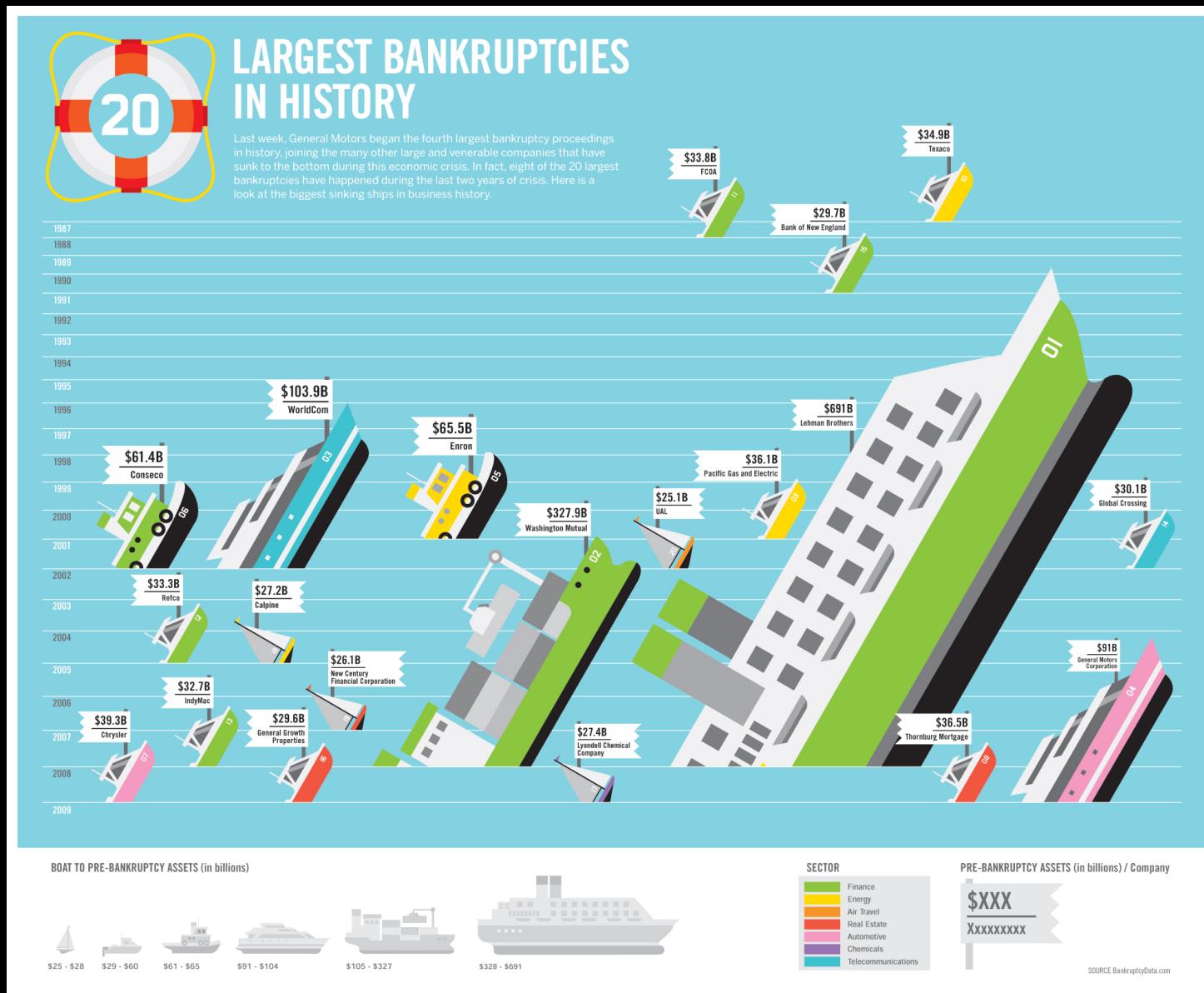
# Infographic or Data Viz?

## Mean Happiness

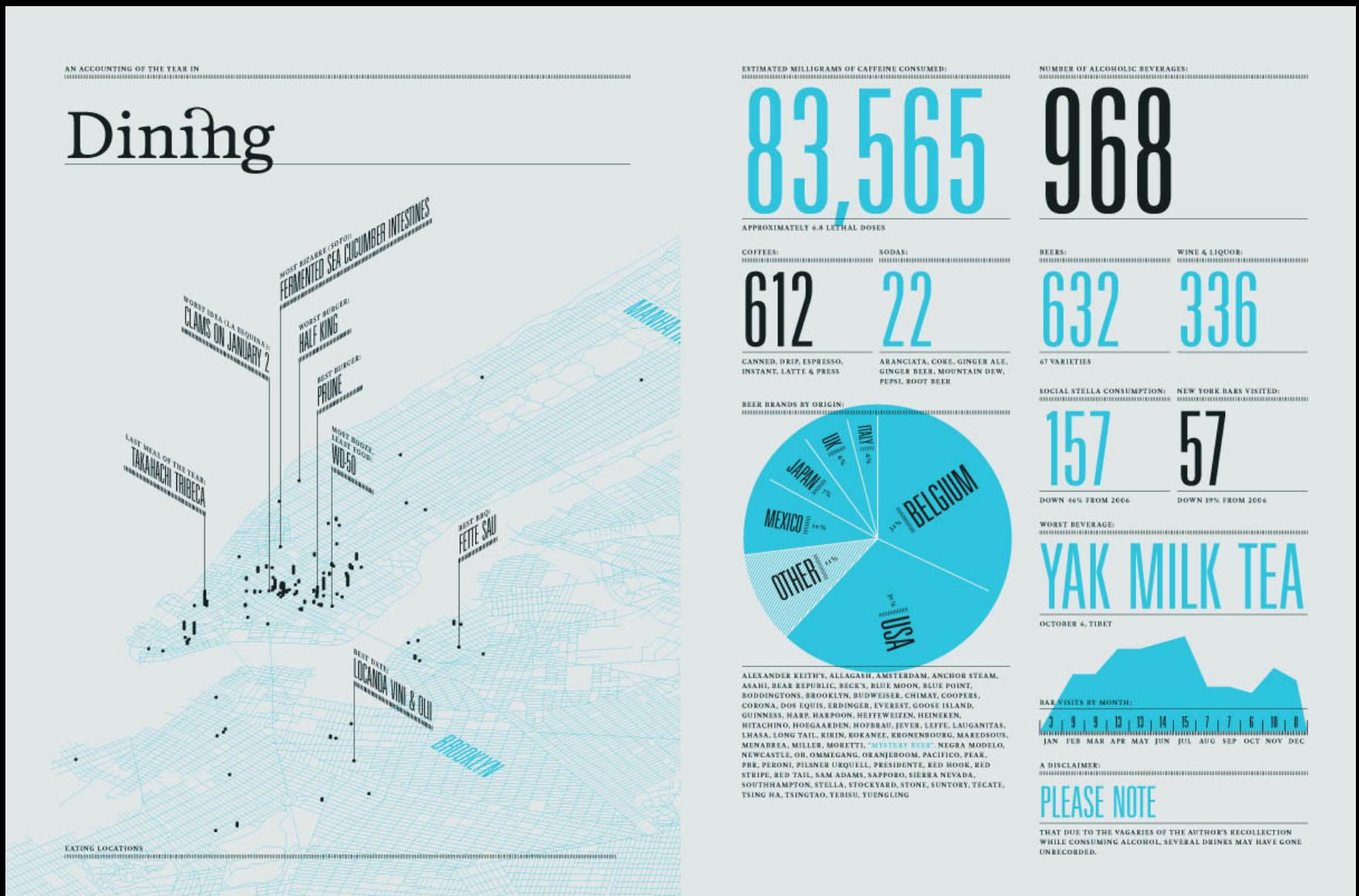
For decades, the World Database of Happiness has tracked how happy people are—not at all happy (1), not very happy (2), quite happy (3), or very happy (4). As it turns out, most of us are mostly happy, even when things aren't going so well. Here's a look at how happy some people said they were (on average) over the last 30 years.



# Infographic or Data Viz?



# Infographic or Data Viz?



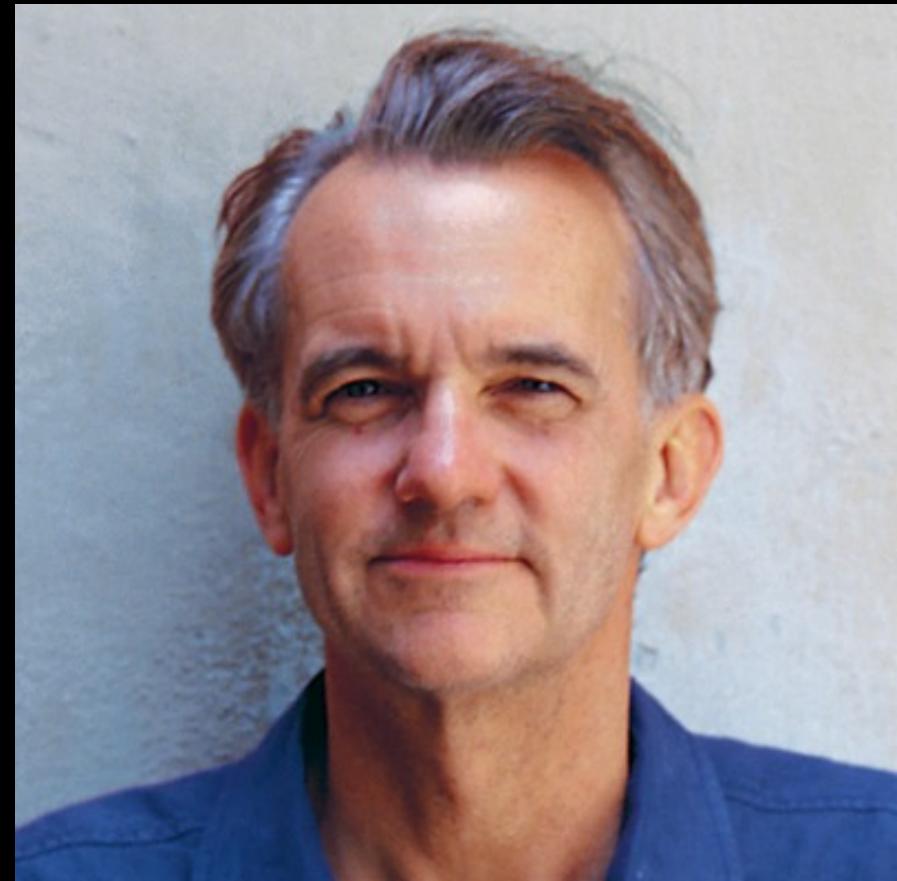
# Infographic or Data Viz?

## Dead Man Walking

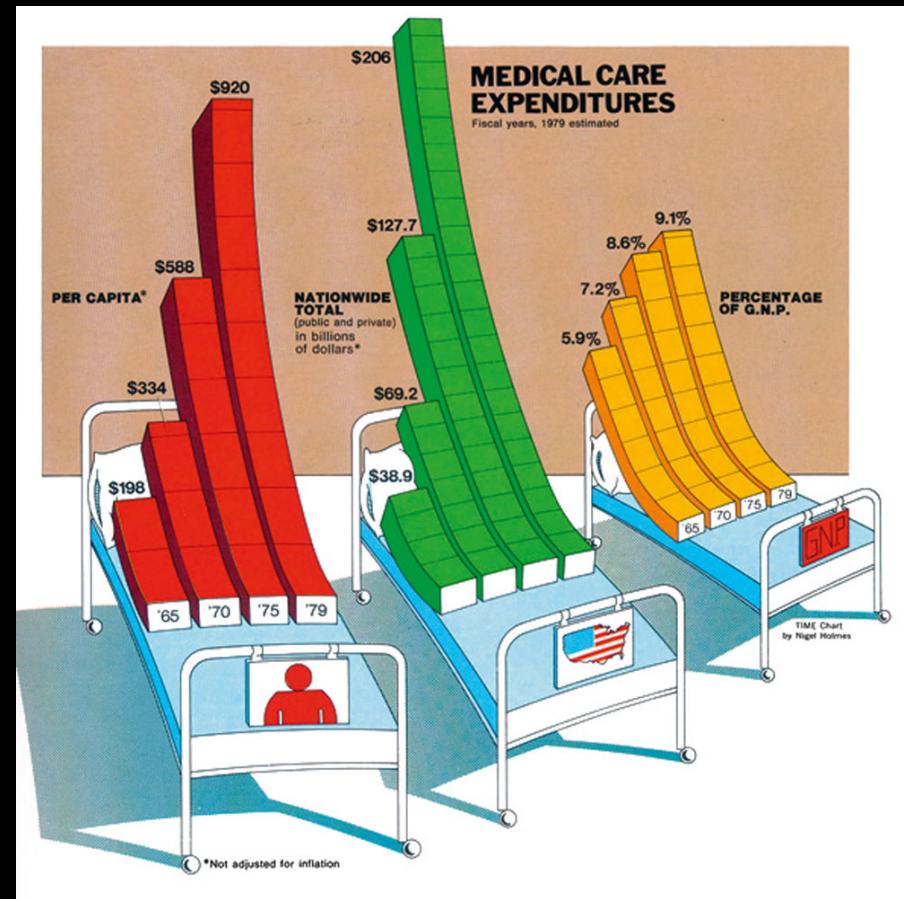
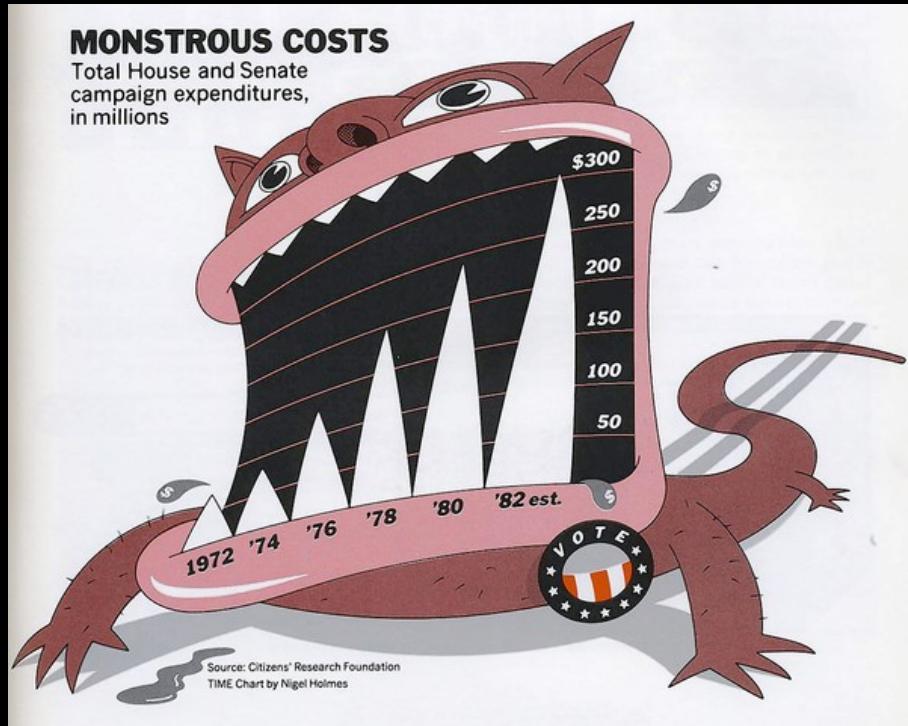
Cities where pedestrians happily walk to their destinations instead of driving everywhere are our dream, but what if walking means taking your life into your hands? This is a look at a handful of cities around the world, and how often their pedestrians are killed while attempting to traverse them.



# Holmes vs Tufte



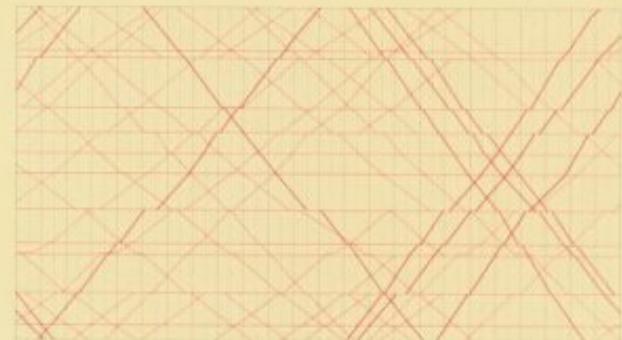
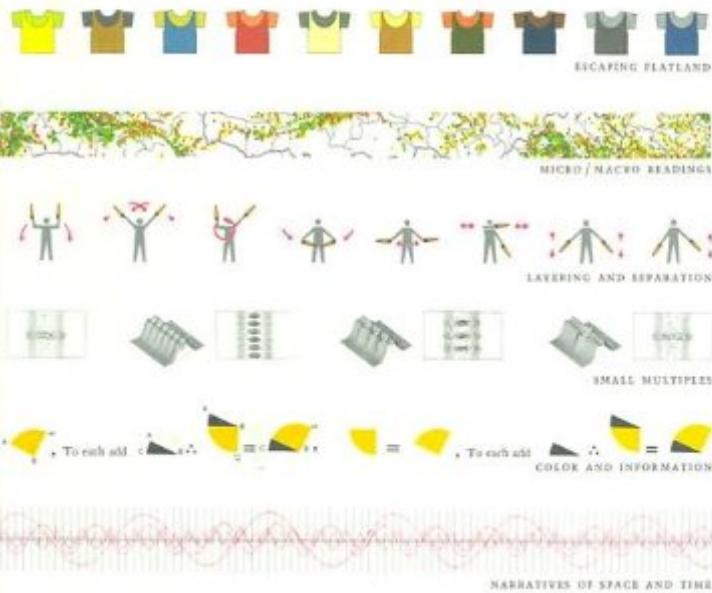
# Nigel Holmes



# Edward Tufte

*Edward R. Tufte*

## Envisioning Information

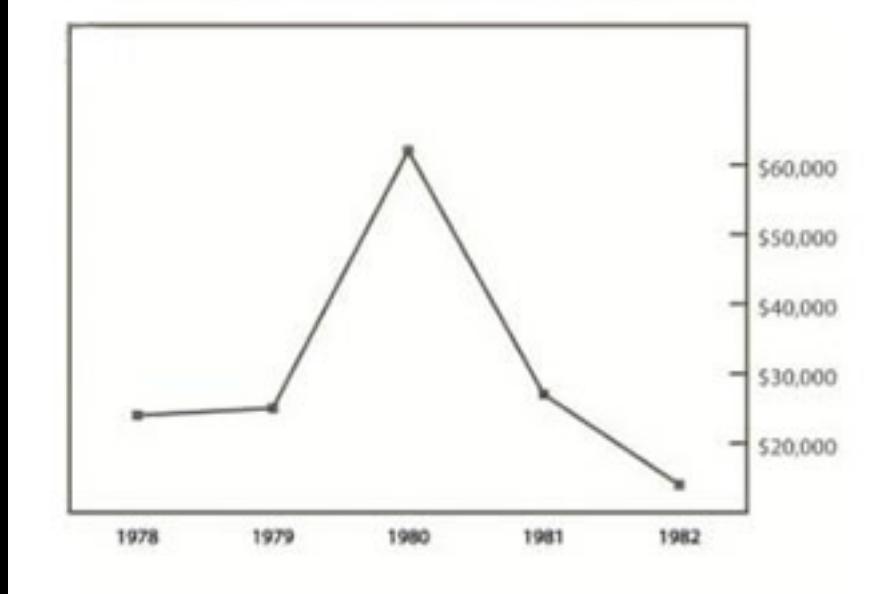
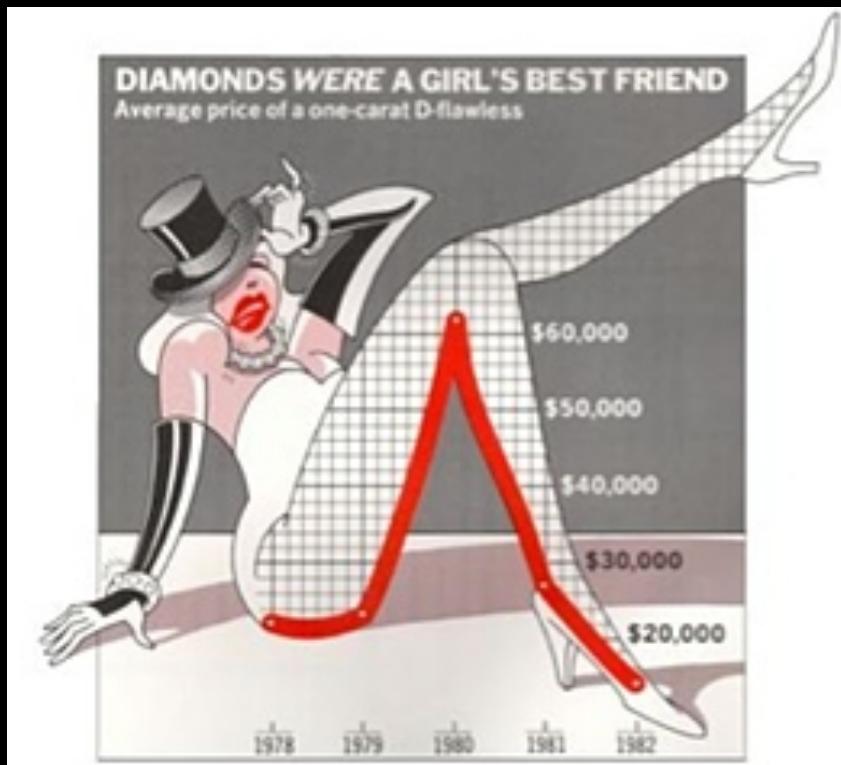


SECOND EDITION

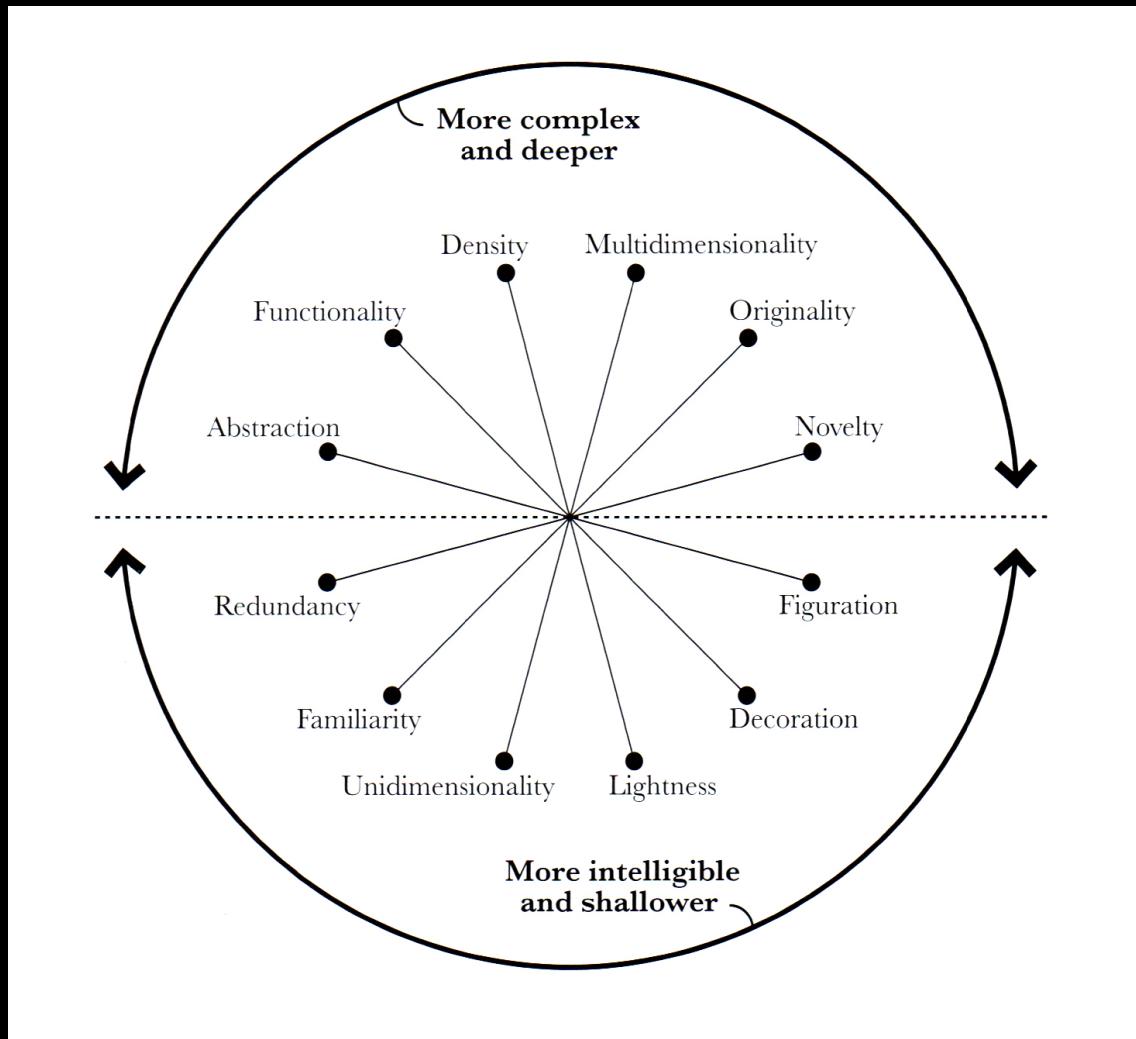
## The Visual Display of Quantitative Information

EDWARD R. TUFTE

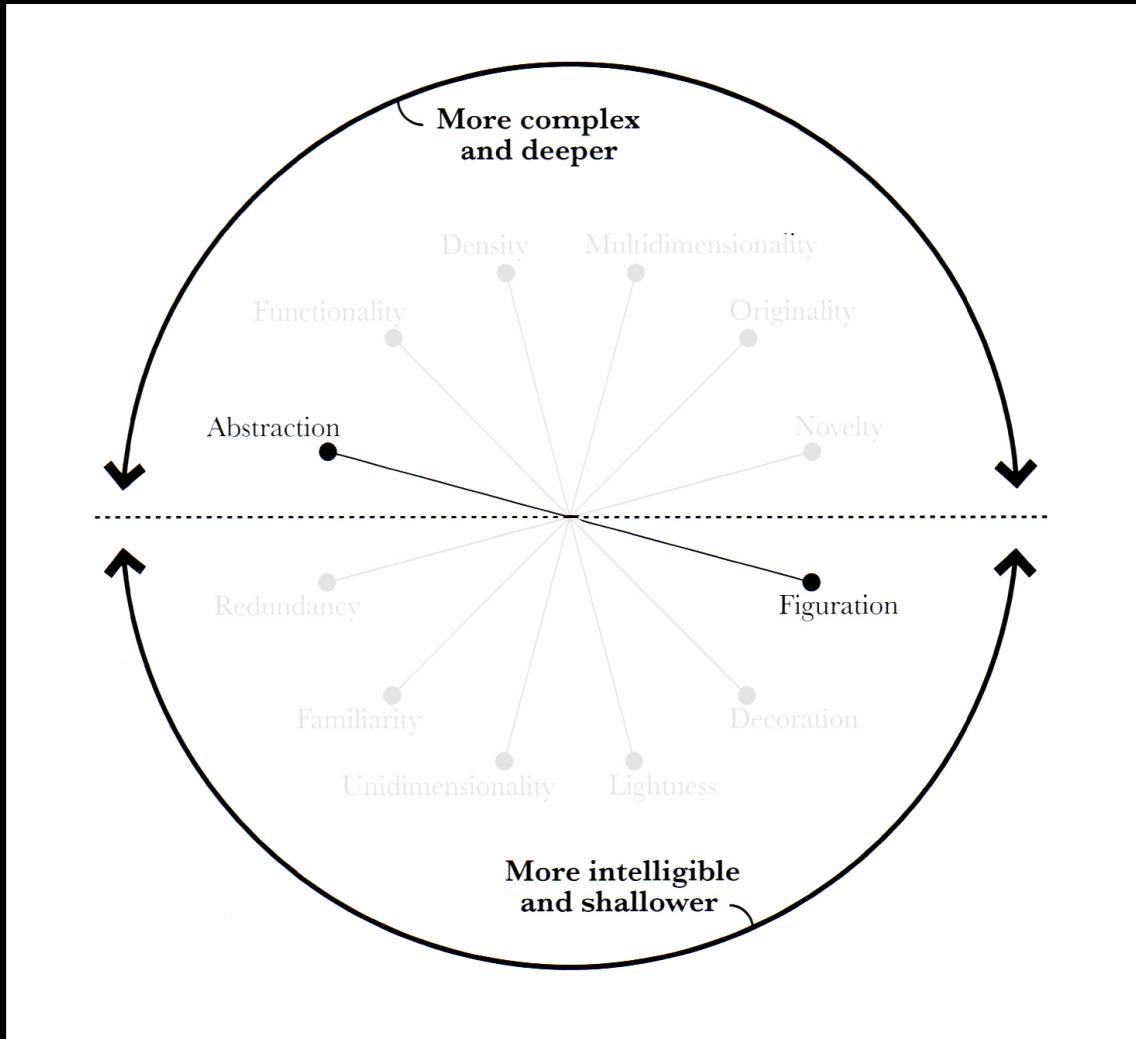
# Chartjunk



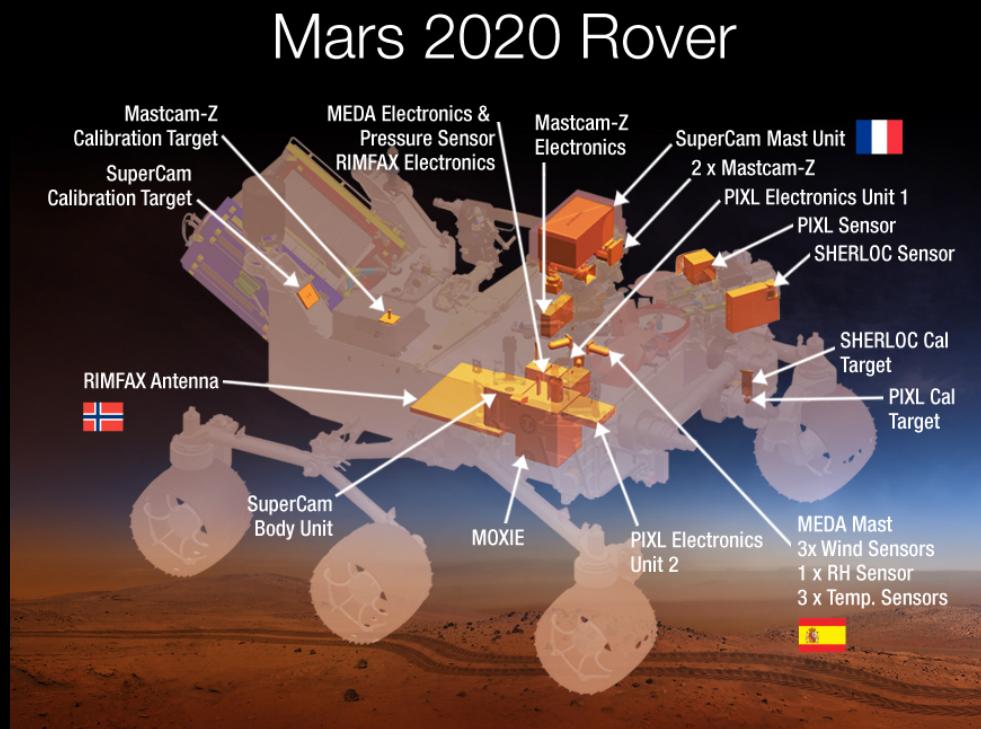
# Memorable vs Clear



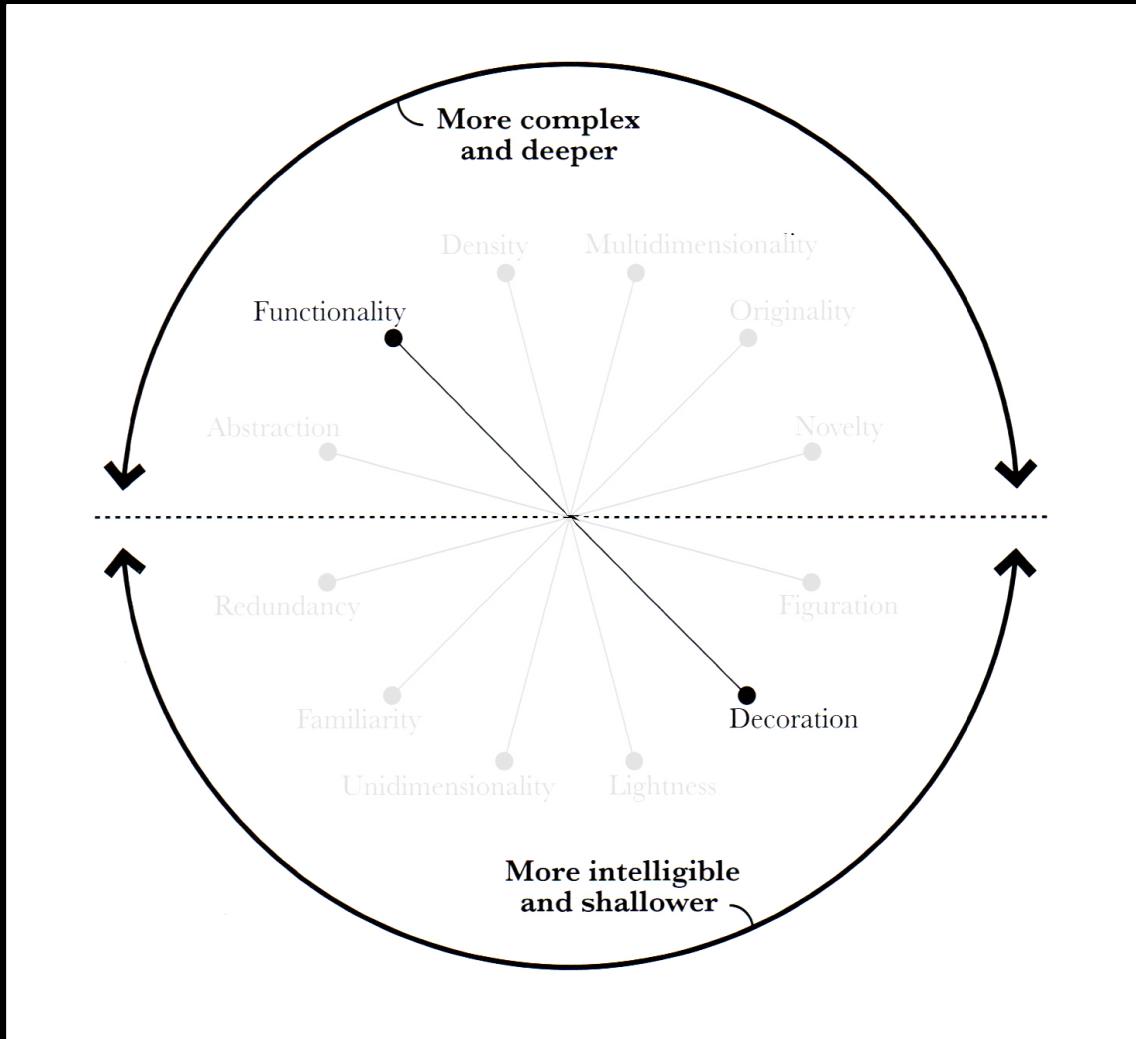
# Abstraction-Figuration



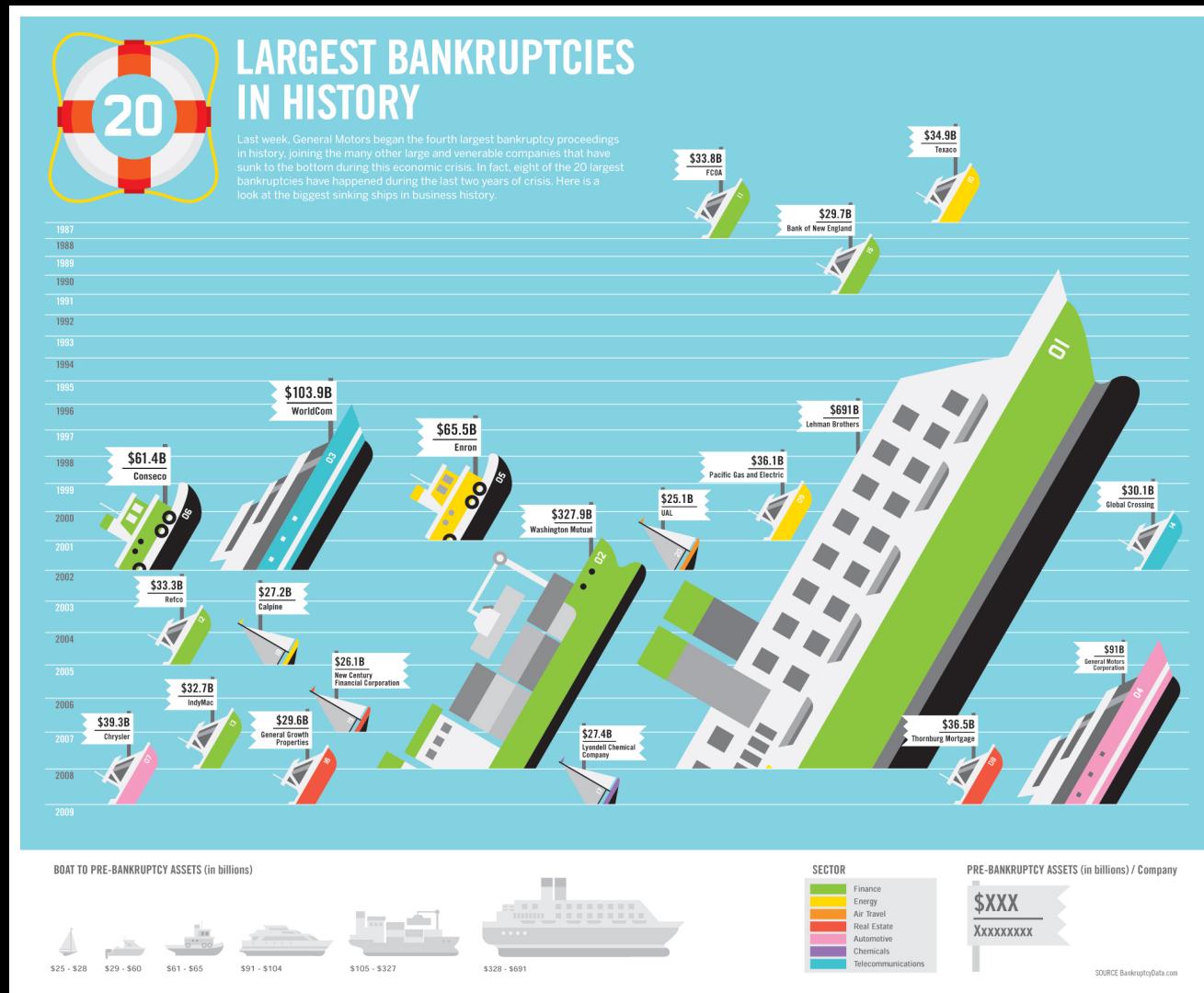
# Abstraction-Figuration



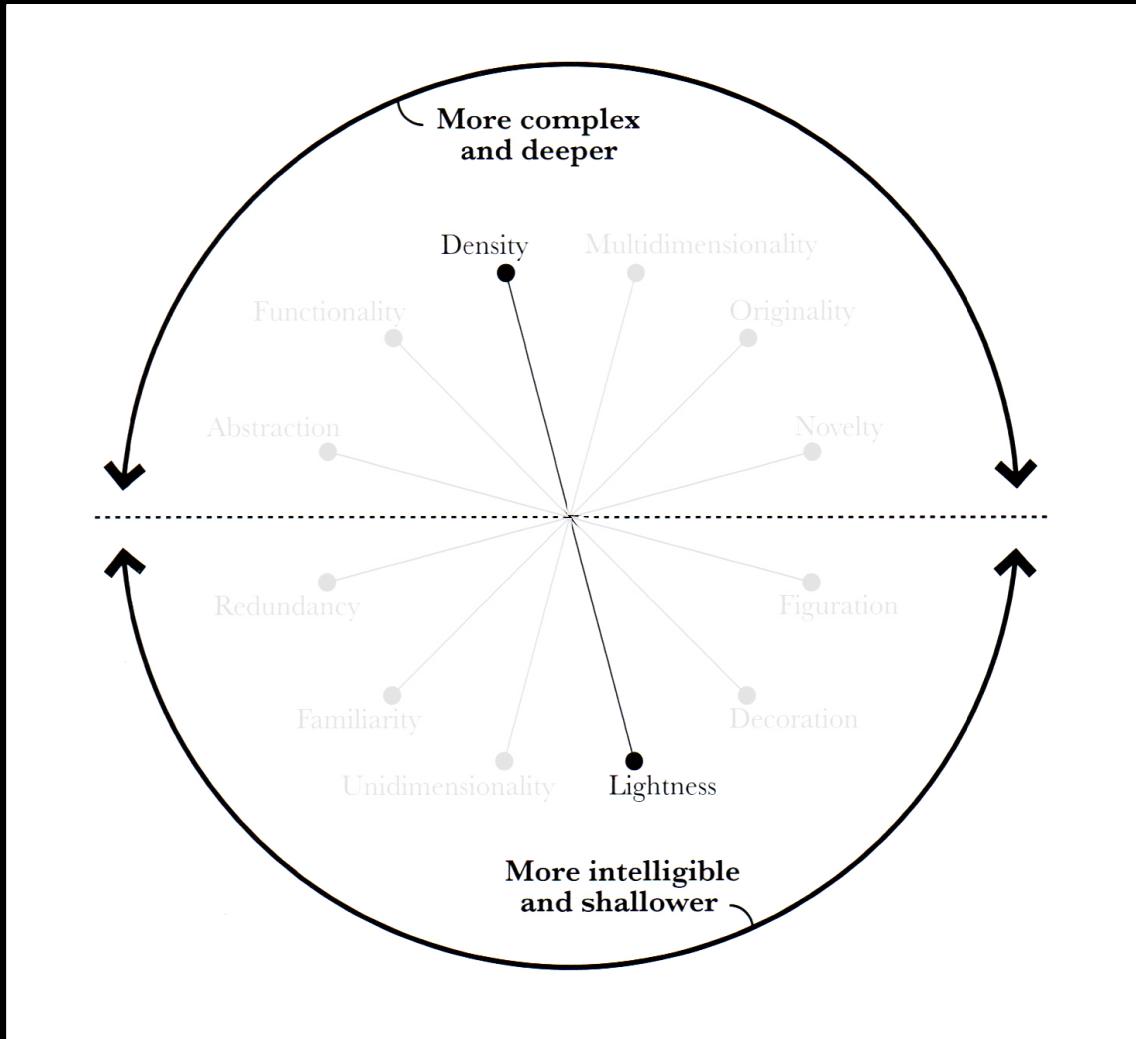
# Functionality-Decoration



# Functionality-Decoration

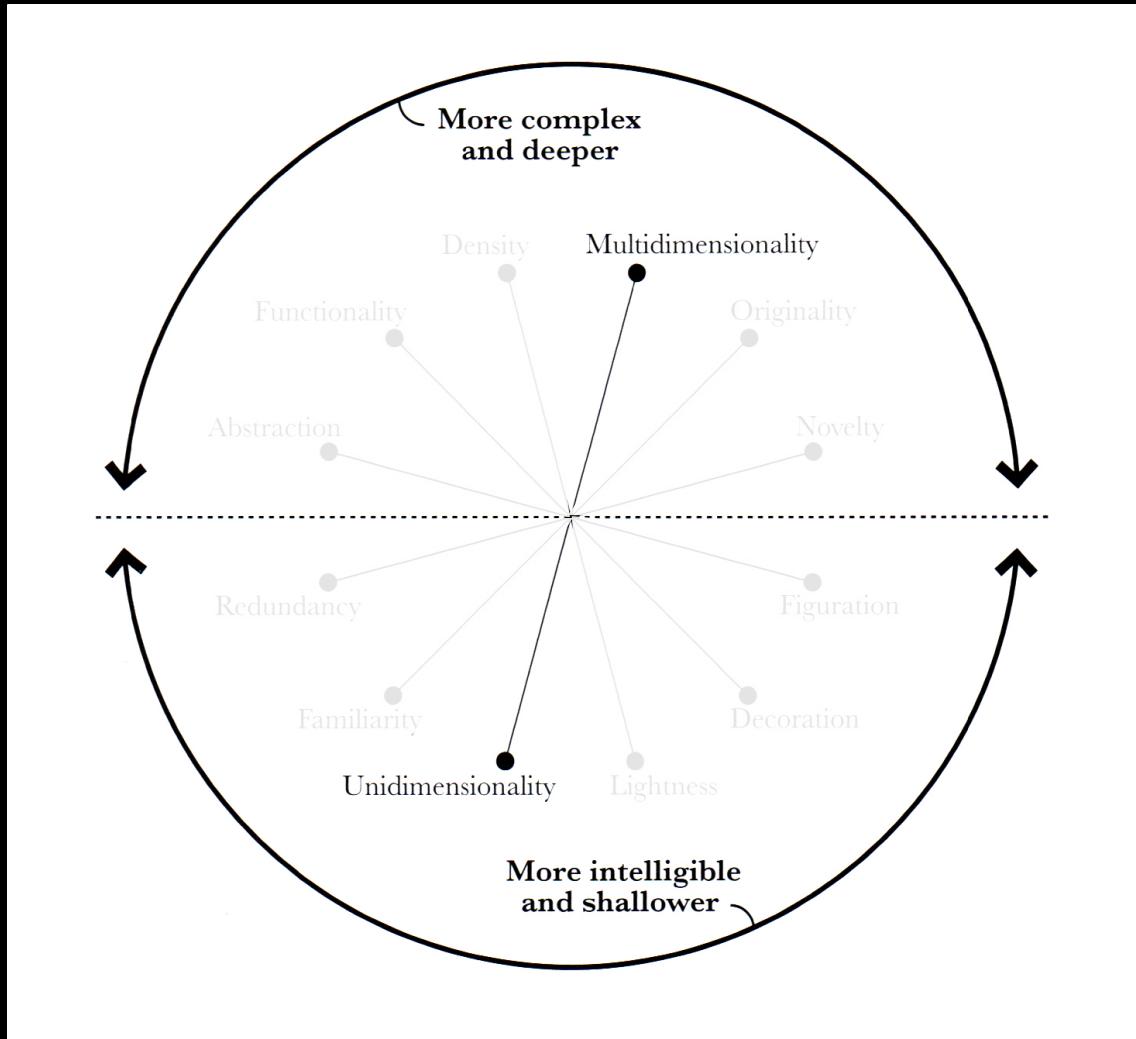


# Density-Lightness





# Multidimensional-Unidimensional



# Multidimensional-Unidimensional

P20 NYT

THE NEW YORK TIMES, THURSDAY, NOVEMBER 4, 2004

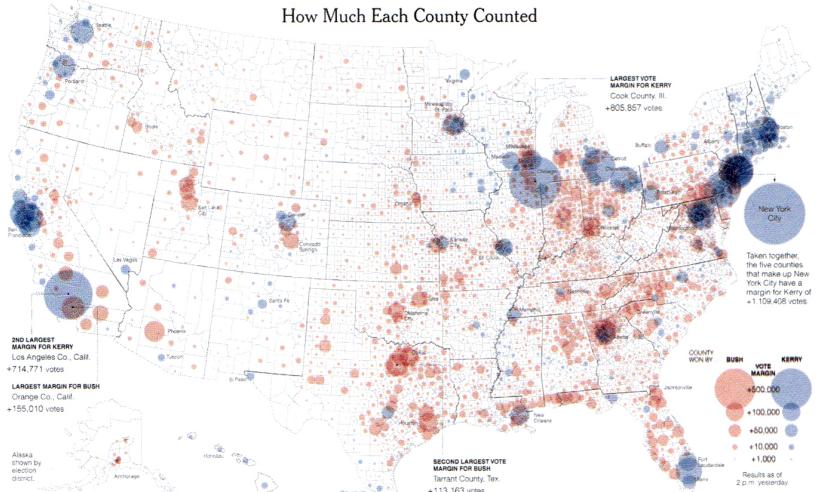
## THE 2004 ELECTIONS THE ELECTORAL MAP

### Red and Blue, the Divided Electorate, in All Its Shades

The simple formula for winning an election is to get more votes than your opponent in as many counties as possible. It worked for President Bush. This map below, which uses the size of circles to indicate a candidate's winning margin, shows how it played out. Senator John Kerry had huge margins in

many counties with large cities, and those margins were enough for him to win some of these states. However, Mr. Bush's relatively smaller but consistent margins in suburban and rural counties, in much of the South and West, helped him overcome Mr. Kerry's urban-county margin.

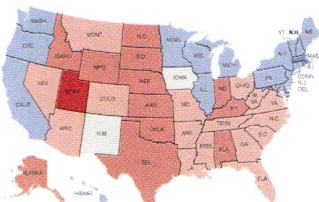
#### How Much Each Counted



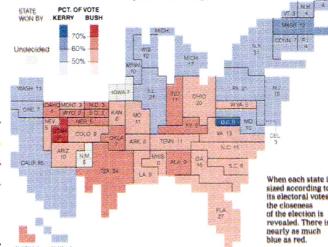
### Two Views of the Electoral Vote

By Geography

Using the typical map of the United States, vast swaths are painted red.



#### By Electoral Weight



#### The Electoral Results

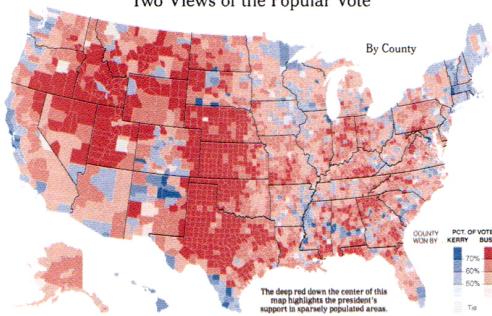
With two states undecided, New Mexico and Iowa.



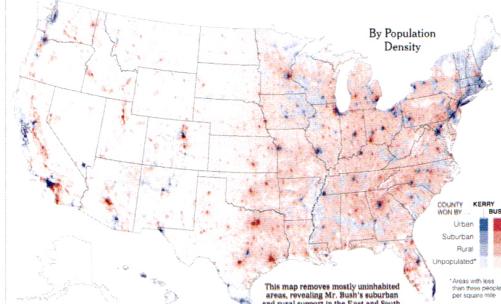
Sources: 2004 results from the Associated Press, except for Alaska from the state's Division of Elections; population density from LandScan 2003.

### Two Views of the Popular Vote

By County



By Population Density

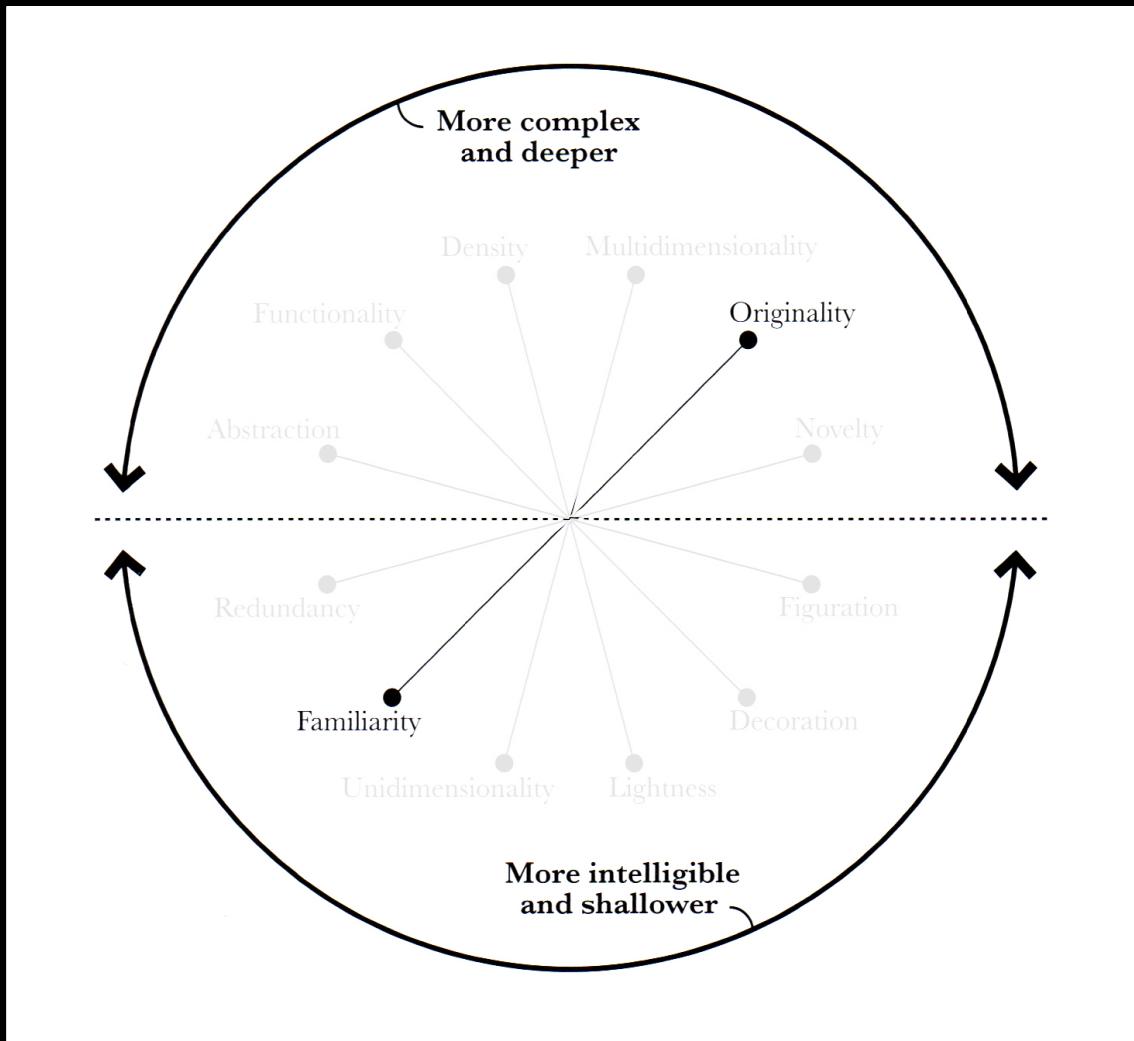


This map removes mostly uninhabited areas, revealing Mr. Bush's suburban and rural support in the East and South.

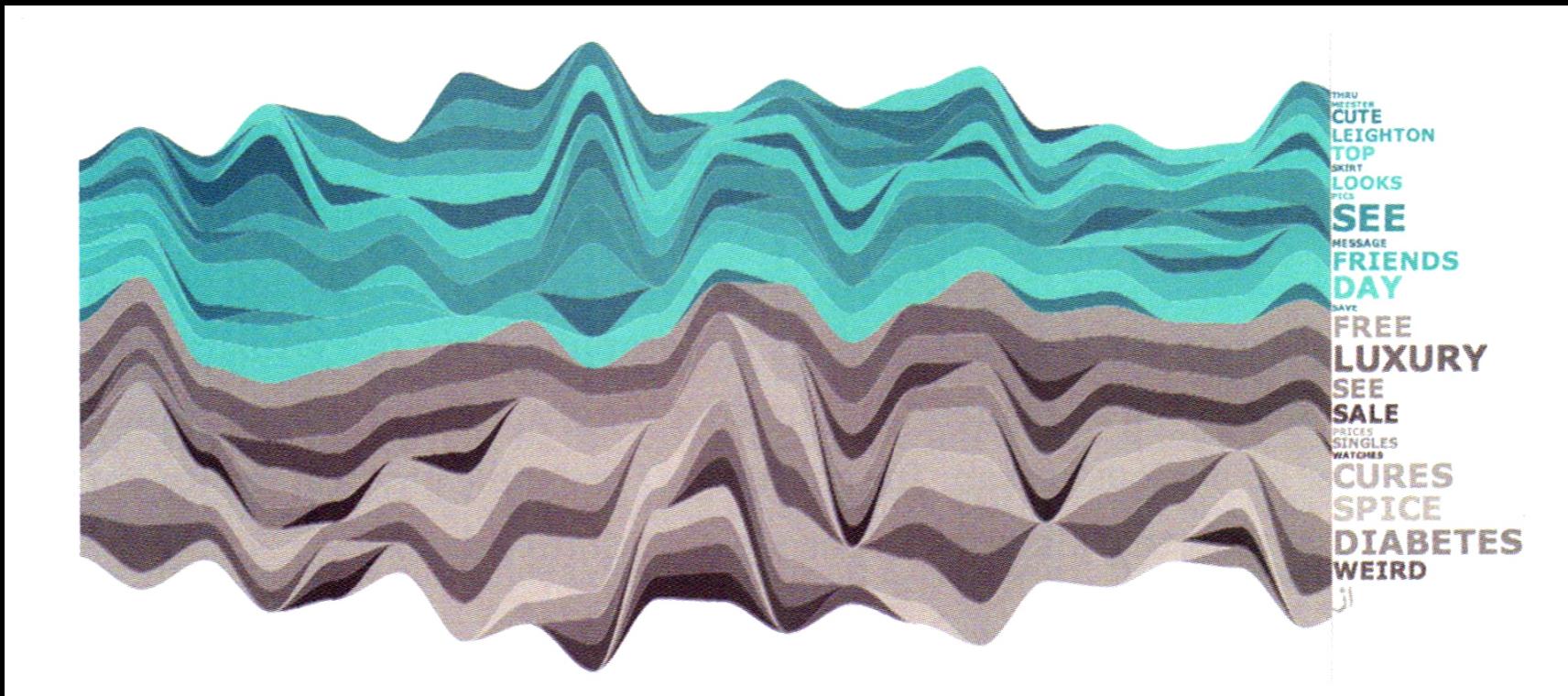
Matthew Crotty, William McNaught and Andrew Tarlton/The New York Times

\*Areas with less than three people per square mile

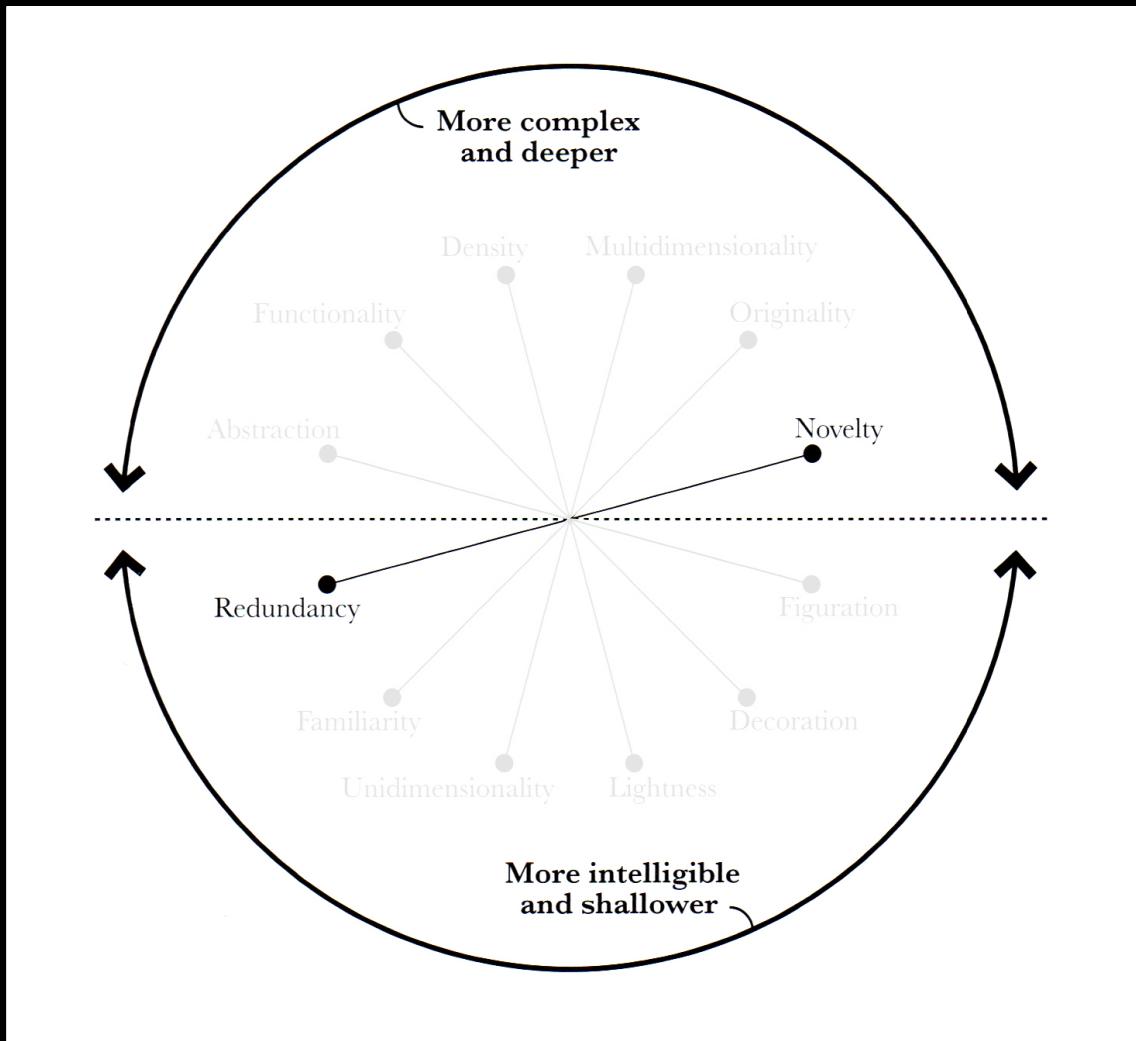
# Originality-Familiarity



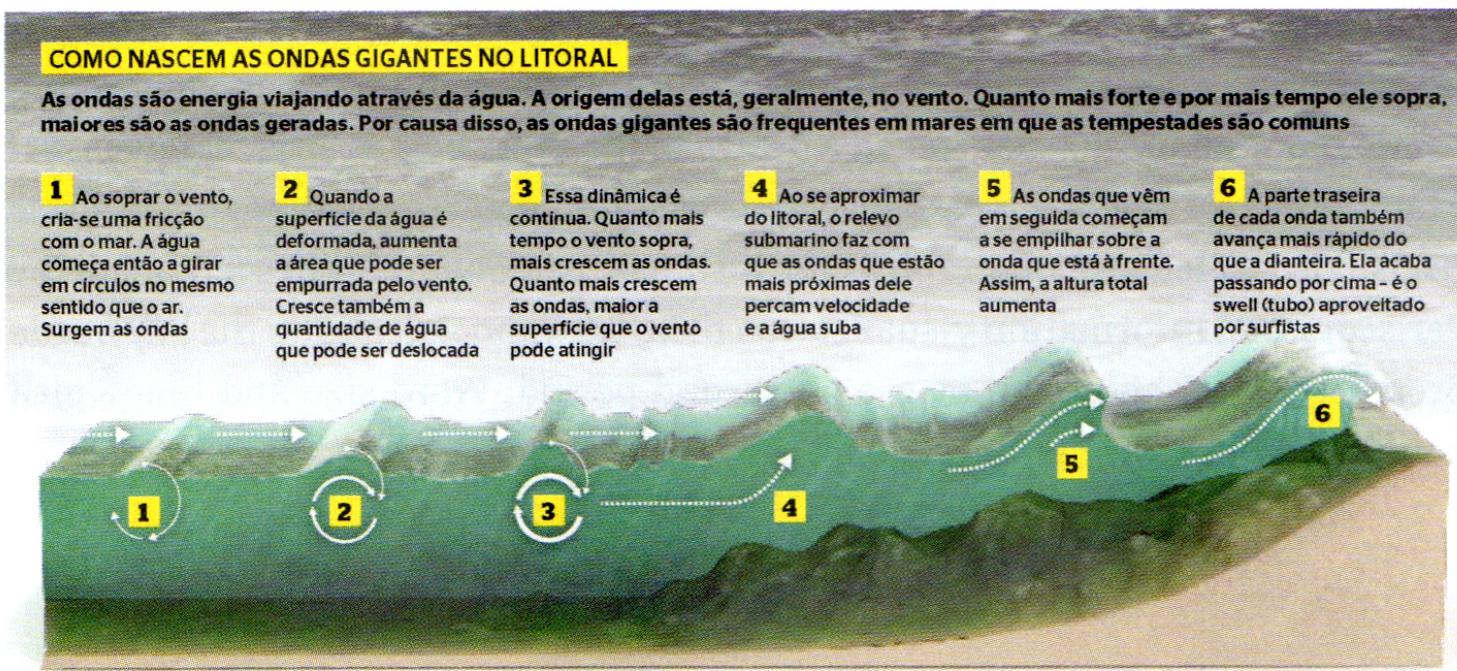
# Originality-Familiarity



# Novelty-Redundancy



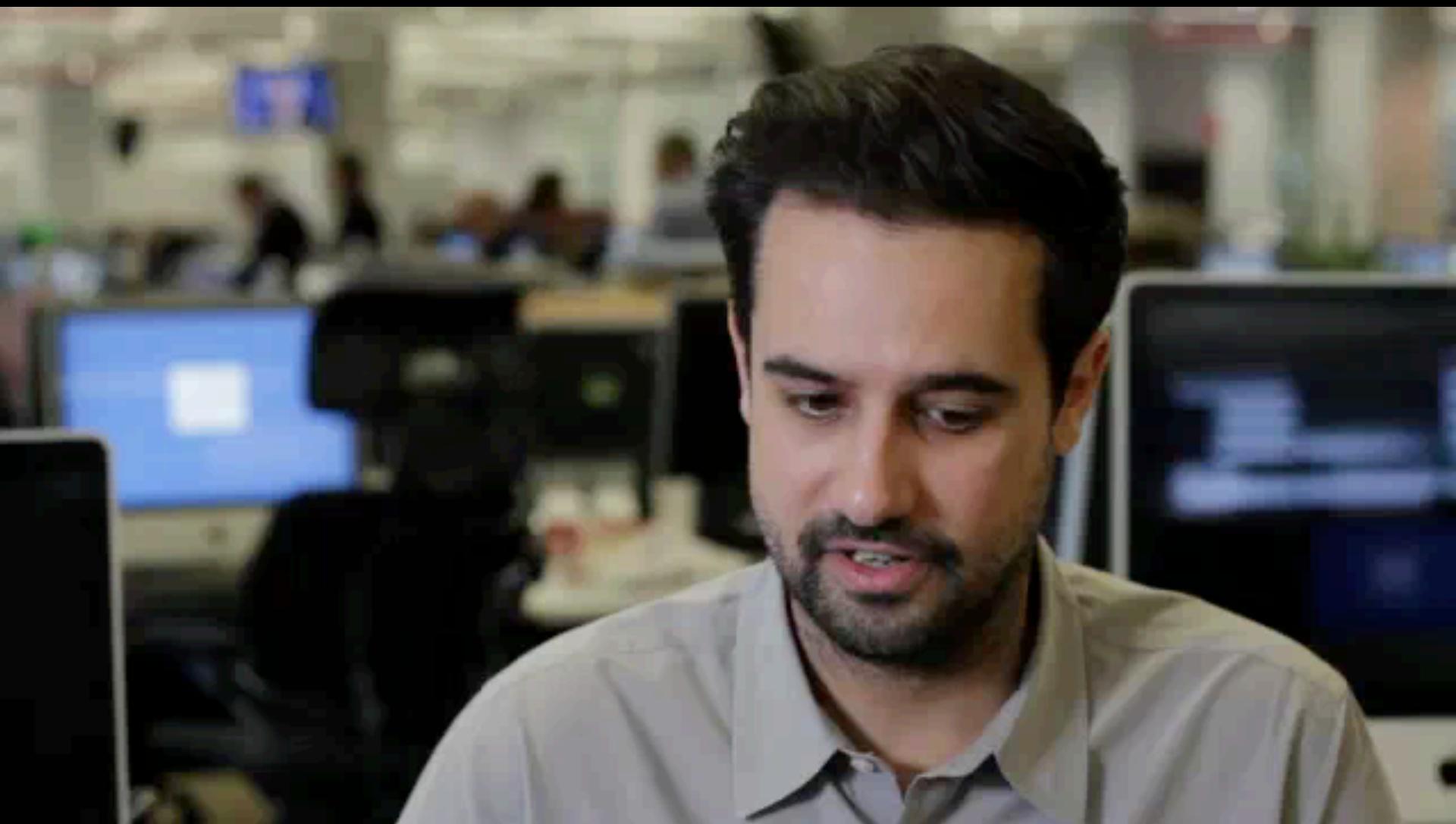
# Novelty-Redundancy



# Data Journalism

**Data journalism uses data and facts to help support any given story. It reflects the increased interaction between journalist and several other fields such as design, computer science and statistics.**

# Data Journalism



# Data Journalism

south end of Edge-hill. In its progress it knocked down several workmen, one of whom was so violently affected in the back of the head, that for relief he had recourse to bleeding; and a girl in a garden had her arm suddenly lifted up by its effect, and felt it benumbed for some time after. The coachman of Mr. Duff was struck on the arm whilst on the box, but was merely stunned. A lady near Ilkington, who was sewing at the time, felt in the fingers in contact with the needle a sensation resembling that of a slight electric spark. The electric fluid entered the house of Mrs. Clark, in Edge Vale, where its progress was not less alarming to the inmates, than destructive to the premises; and we have never heard of a more surprising escape, than that of the several individuals dispersed in a house, of which almost every room bears testimony of the ravages of the uncontrollable element. It appears probable, from an examination of the aperture through which the fluid has made, and the direction in which the bricks, timber, &c. have been forced, that, attracted by the iron railing in front of the house, it entered the wall on one side the door, where it has shattered the bricks, torn to pieces the wood and brick-work between the door-pillar and the arch-way of the door; lifted the boards on the top; shook the fan-light to pieces, burning part of the frame, and leaving a black soot on the paint-work; thence it passed up through the arch door, splitting the bricks and the stones at the bottom of the middle window, the glass of which was shattered to pieces, and the whole frame dislodged and forced into the house. Over the window it forced, in its way to the roof, a large hole, above which the soot appears exactly as if flames had issued from it. Its course appears next to have been towards the chimney: the rams were shattered to pieces; the ridge stones displaced; many bricks and much cement torn from the wall; and the lead in many places forced up. It probably reached the rooms below by the chimneys. In the lower room the staves, plaster and paper are in several places broken, and the fluid, as it ascending its way out, scorched the gilding of the chimney glass, and peeled the top ornaments, but did not disturb the polished fire-irons, just below. Six squares of glass were driven out in this room. In the room above, in one corner, stood a bundle of rods, to which it made its way, perhaps from the chimney, between the lathing and the wall, as it forced off the plaster, and shot a quantity of it against a chest of drawers, eleven or twelve feet distant, evidently with

DAY SCHOOLS.—Establishments	Bogs	Girls	Total	Ave. Exp.	Remarks.
Grammar School .....	155	....	155	1800	
Blue Coat ditto .....	80	....	80	2000	Taught, clothed and boarded.
Green Coat ditto .....	50	....	50	200	Taught and clothed.
Collegiate Church ditto .....	....	50	50	20	And offering money: do, do.
Straugways ditto .....	10	....	10	100	
St. Mary's ditto .....	12	12	24	40	(Suppose)—Taught and clothed.
St. John's ditto .....	9	....	9	40	Funds arising from Sacramental Offerings.
St. Paul's ditto .....	20	....	20	40	(Suppose)—Expenses raised by voluntary Subscription.
Ladies' Jubilee .....	....	20	20	250	Taught, clothed and boarded, by voluntary Subscription.
Back King-street .....	23	....	23	50	(Suppose)—Taught and partly clothed. This School is supported by the benevolence of a single individual.
NATIONAL SCHOOLS, Granby-row Bolton-street, Salford	194	119	313	600	Voluntary Subscription, and Collections at Churches.
	200	170	370		
	824	381	1205	£5410	
<i>Disasters.</i>					
UNITARIAN SCHOOL, Marshall-st.	499	225	724	400	Voluntary Subscription.
UNITARIANS, Mosley-street .....	....	35	35	50	Ditto ditto
CATHOLIC .....	198	121	319	104	Ditto ditto
<i>SUNDAY SCHOOLS.</i>					
Establishments.	800	361	1271	£554	
Collegiate Church, Shude Hill .....	201	205	406		
St. Anne's, Back King-street .....	50	56	106		
St. Mary's, Back South Parade .....	120	110	230		
St. Paul's, Green-street .....	170	163	333		
Turner-street .....	68	71	139		
Jersey-street .....	314	281	595		
St. George's, St. George's .....	142	112	253		
St. John's, St. John's-street .....	118	163	281		
St. James's, St. James's-street .....	102	196	300		
St. Michael's, Miller-street .....	234	312	546		
St. Peter's, Jackson's-row .....	..	120	120		
Alport Town .....	96	....	96		
St. Clement's and St. Luke's, Bennet-street	303	1071	1966	.....	This is, perhaps, the largest School in the Kingdom. It cost about £2,300, of which £542 9 10 <sup>s</sup> was contributed in small sums by the Teachers and Scholars.
St. Stephen's, Bloom-street .....	181	297	478		
Oxford-road .....	129	204	333		
Trinity, King's Head Yard .....	226	300	526		
Hulme, Duke-street .....	182	189	371		
All-Saints, Oxford road .....	196	191	387	30	
Arbwick .....	60	110	170	25	
	3434	4213	7647	£5079	

11, June 9, at 10, at Guildhall, London. Messrs. Tomlinson and Bennett, the executors.

LEE Jonathan, of Sunderland, in the county Durham, grocer, d. c.; May 12, 19, June 9, 18, at Guildhall, London. Atts. Messrs. G. Hadlow and G. Tait, Thompson-street, PAWN Thomas, and John Daniel Payne, of Cane-street, in the city of London, warehousemen, d. c.; May 5, Pt. June 9, at 1, at Guildhall. Atts. Mr. Hadlow, Rainhill-street.

SMITH John, now or late of Pat里ington, in deram, in the county of York, grocer, draper, d. c.; May 11, 12, June 9, at 11, at Dog and Duck Tavern, King-street-Hall. Mr. Walmsley, Hull.

TATE John, of Liverpool, in the county of Lancaster, provision-monger, d. c.; May 12, June 9, at 1, at the George Inn, Liverpool. Mr. Denison, Liverpool.

WARD Joseph, late of Rushay, in the county Oxford, (but now a prisoner in the King's Bench prison), brewer, d. c.; May 5, 13, June 9, 12, at Guildhall, London. Atts. Messrs. F. and Monday, Holborn.

WHATTON Robert and Henry Whatton, of Crosby, in the county of Lancaster, joiners, hanger-carpenters, late carpenters in trade, 1, 19, June 9, at 11, at the George Inn, Liverpool. Atts. Mr. Hodges, Liverpool.

WILSHOTT Daniel, of Frimley-street, Redbridge, in the county of Surrey, master-manufacturer, d. c.; May 5, at 10, May 13, at June 9, at 10, at Guildhall, London. Messrs. Paterson and Poole, Old Broad-street.

#### DIVIDENDS.

May 22. Marrian & Atkinson, London, mercers.

22. J. Davies, Shrewsbury, flax-spinners.

23. W. Bewley, Manchester, tinner.

22. W. and A. Copp, Exeter, drapers.

22. W. Bourne, Exeter, draper and tailor.

23. J. Dobell, Staplehurst, Kent, draper & tanner.

22. J. Lov, London, watch-makers.

24. T. Cassidy, Liverpool, feather-monger.

25. J. Williams, London, draper.

26. M. B. Schlesinger London, import-export merchant.

June 5. Ryder & Nasmyth, London, sugar-refiners.

John Harrison and Brothers, Manchester, spinners. — Widow Welsh and Sons, Manchester, cotton-spinners. — Geo. Ramsden and Co. Ltd.

# Data Journalism

The screenshot shows a Mac OS X desktop with a web browser window open. The title bar reads "NSA files decoded: Edward". The address bar shows the URL "www.theguardian.com/world/interactive/2013/nov/01/snowden-nsa-files-surveillance-revelations-decoded#section/1". The bookmarks bar includes "Apps", "Bookmarks", "Personal", "ITP", "Scripts", "Materials", "Design", "DV", "Work", "CUNY", and "kimonify". The main content area features the "theguardian" logo, the title "NSA FILES: DECODED" in large blue and red letters, and the subtitle "What the revelations mean for you." Below the title is a graphic of an eagle with its wings spread, set against a background of binary code and a red downward-pointing arrow.



# Data Journalism

2014: The Year in Interactive

[www.nytimes.com/interactive/2014/12/29/us/year-in-interactive-storytelling.html](http://www.nytimes.com/interactive/2014/12/29/us/year-in-interactive-storytelling.html)

DATA VISUALIZATION

**Mapping Poverty in America**

Data from the Census Bureau show where the poor live.

The New York Times  
Published January 4, 2014

VIEW Percentage below the poverty line  
Number living in poverty

PCT. below the poverty line

POVERTY THRESHOLDS IN 2012

- \$23,883 Family of four
- \$11,845 Individual under 65

Census tract 061301  
Poverty rate  
Poor population  
871

Map date 2014 Google - Terms of use

By MATTHEW BLOCH, MATTHEW ERICKSON and TOM GRATCHANON

Mapping Poverty in America

JAN. 4

Data from the Census Bureau show where the poor live.

FACEBOOK | TWITTER

**The Federal Budget, Per Person**

By WILSON ANDREWS AND ALICIA PARLAPIANO  
JAN. 18, 2014

The House and Senate last week passed a hefty spending bill that included \$1.1 trillion in discretionary spending for 2014 and provided funds for some mandatory programs (though the bill does not control the levels of that spending).

**\$259** COST PER CAPITA

AGRICULTURE Food stamps (SNAP)  
Total: \$82 billion MANDATORY SPENDING

**\$61**

AGRICULTURE Child school lunch program  
\$19.5 billion MANDATORY SPENDING

**\$40**

AGRICULTURE Loans and direct payments to farmers  
\$12.5 billion MANDATORY SPENDING

The Federal Budget, Per Person

JAN. 19



# Data Journalism



Bloomberg

# Data Journalism

The screenshot shows the FiveThirtyEight website on a Mac OS X desktop. The browser window has a dark theme with a light gray header bar. The address bar shows "fivethirtyeight.com". The main content area features a large banner image of Bernie Sanders speaking at a podium. Below the banner, a headline reads "Bernie Sanders's Big Chance To Woo Non-White Voters" by Harry Enten. To the right of the banner, there are two columns of news items under "THE LATEST":

- 10:45 AM: On Any Given Sunday, NFL Favorites Win And Underdogs Lose
- 1:11 PM: Playoff Umps Are Screwing Up A Tenth Of Balls And Strikes
- 12:19 PM: 2015-16 NBA Preview: The Hawks Will Be Mostly The Same, But Worse
- 9:58 AM: 2015-16 NBA Preview: The New-Look Spurs Are Gonna Be Really Good
- 6:30 AM: Bernie Sanders's Big Chance To Woo Non-White Voters

On the right side, there are two interactive graphics:

- "2015 NFL Predictions" featuring a stylized football player.
- "NBA Player Projections" featuring LeBron James, Stephen Curry, and James Harden.

The top navigation bar includes links for MENU, POLITICS, ECONOMICS, SCIENCE, LIFE, and SPORTS. The bottom navigation bar includes links for Apps, Bookmarks, Personal, ITP, Scripts, Materials, Design, DV, Work, CUNY, and kimonify. Other Bookmarks include ESPN.



# Ethics

## 5 Qualities of a Great Data Visualization

1. **It is truthful**, as it's based on thorough and honest research.
2. **It is functional**, as it constitutes an accurate depiction of the data, and it's built in a way that lets people do meaningful operations based on it (seeing change in time).
3. **It is beautiful**, in the sense of being attractive, intriguing, and even aesthetically pleasing for its intended audience—scientists, in the first place, but the general public, too.
4. **It is insightful**, as it reveals evidence that we would have a hard time seeing otherwise.
5. **It is enlightening** because if we grasp and accept the evidence it depicts, it will change our minds for the better.

# Ethics

## Misleading Content

Fox News  @FoxNews Following

Jobless rate after first 3 months: Trump vs. Obama vs. Bush vs. Clinton.



The infographic features a dark background with a landscape silhouette. At the top, a red banner contains the text "100 DAYS UNEMPLOYMENT RATE" in white, bold, sans-serif font, followed by "JOBLESS RATE AFTER FIRST 3 MONTHS" in a smaller white font. Below the banner are four circular portraits of presidents Donald Trump, Barack Obama, George W. Bush, and Bill Clinton, each set against a blue gradient background. Below each portrait is a green numerical percentage: "4.5%" for Trump, "9.0%" for Obama, "4.4%" for Bush, and "7.1%" for Clinton. The entire graphic is framed by a thick black border.

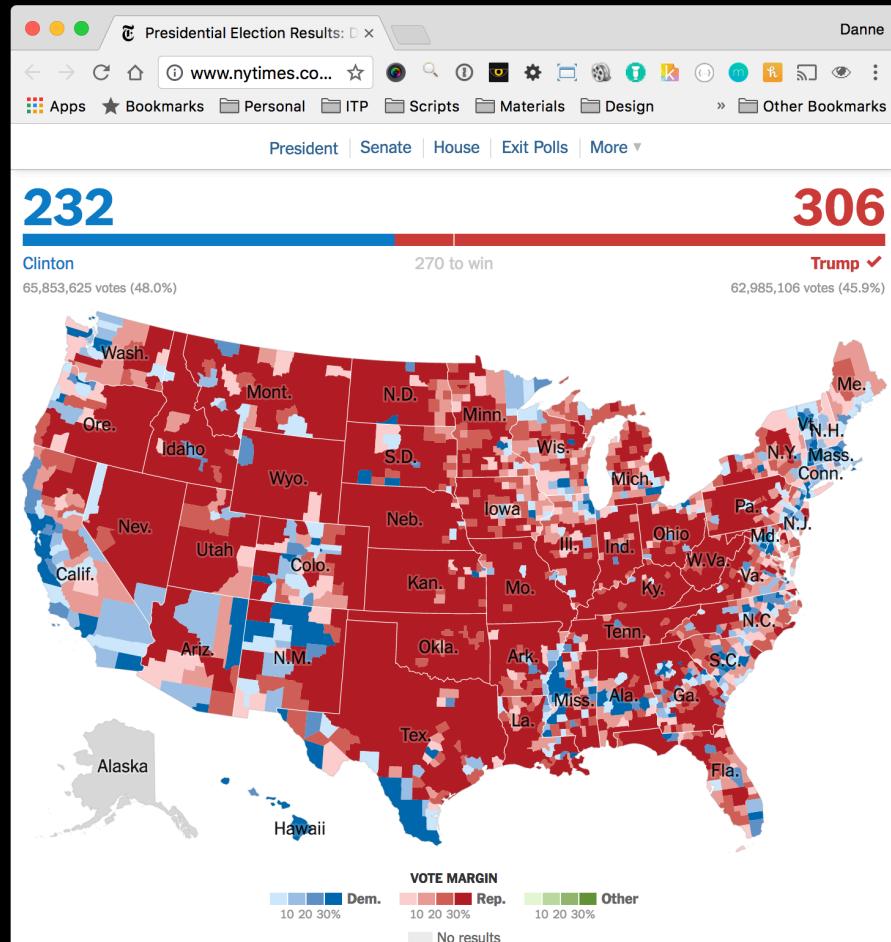
President	Unemployment Rate (%)
Trump	4.5%
Obama	9.0%
Bush	4.4%
Clinton	7.1%

RETWEETS 1,135 LIKES 2,322

10:34 PM - 29 Apr 2017

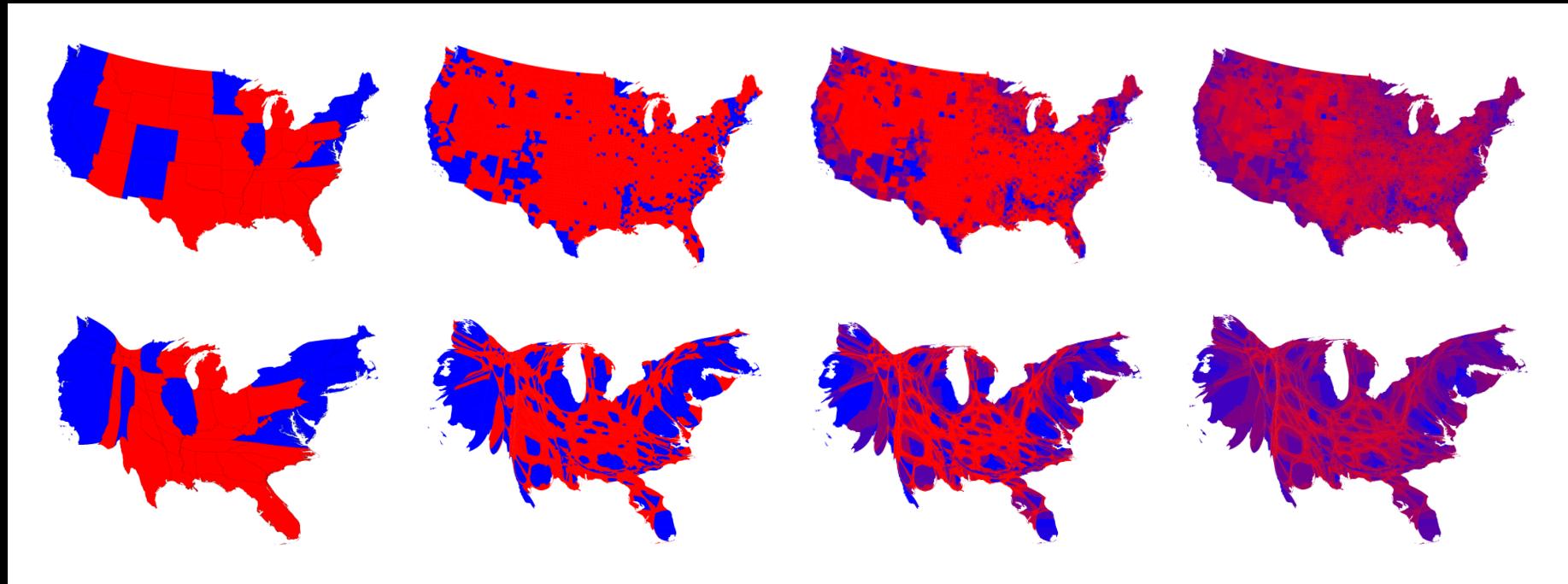
# Ethics

## Choosing The Right Data Set



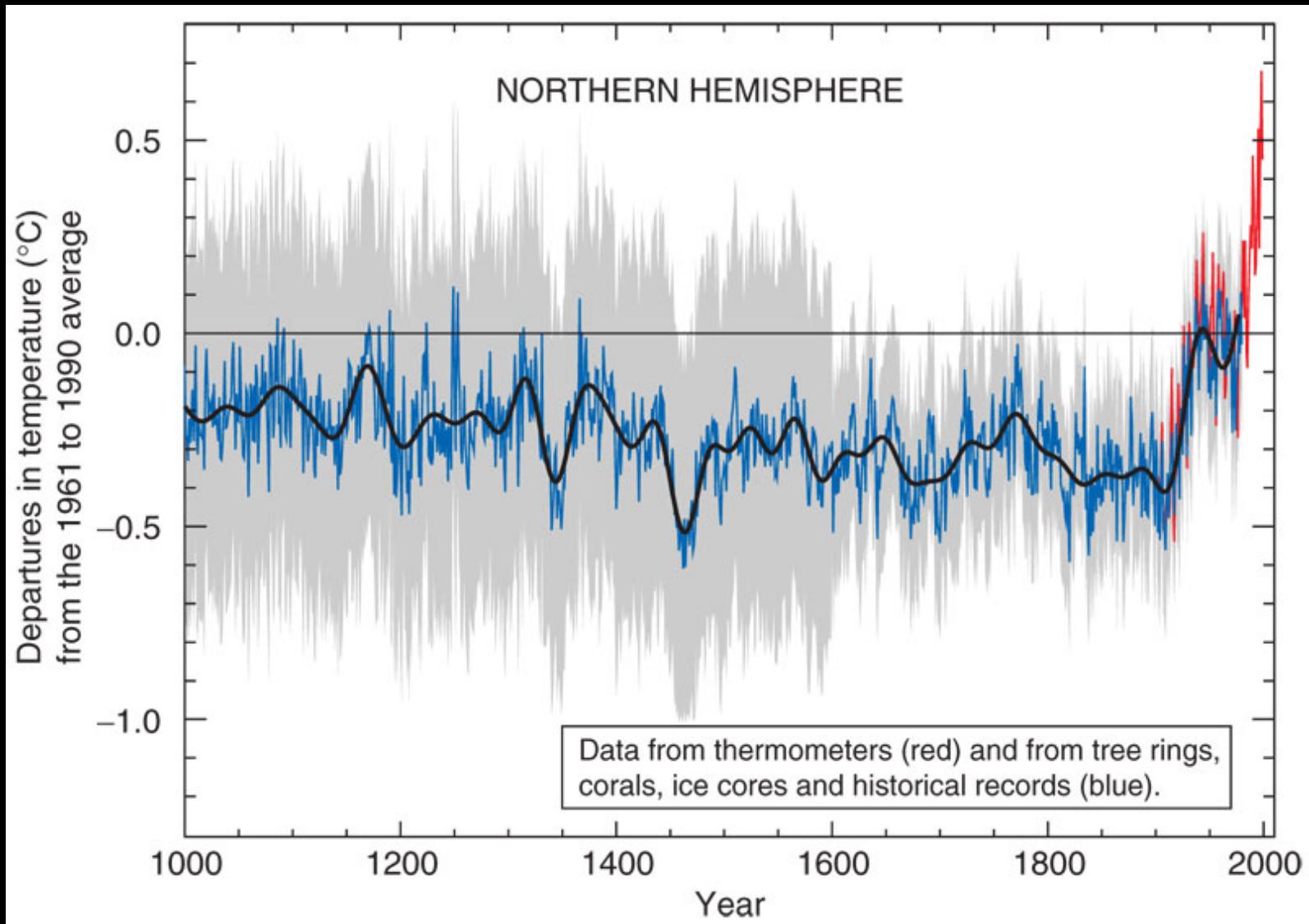
# Ethics

## Choosing The Right Data Set

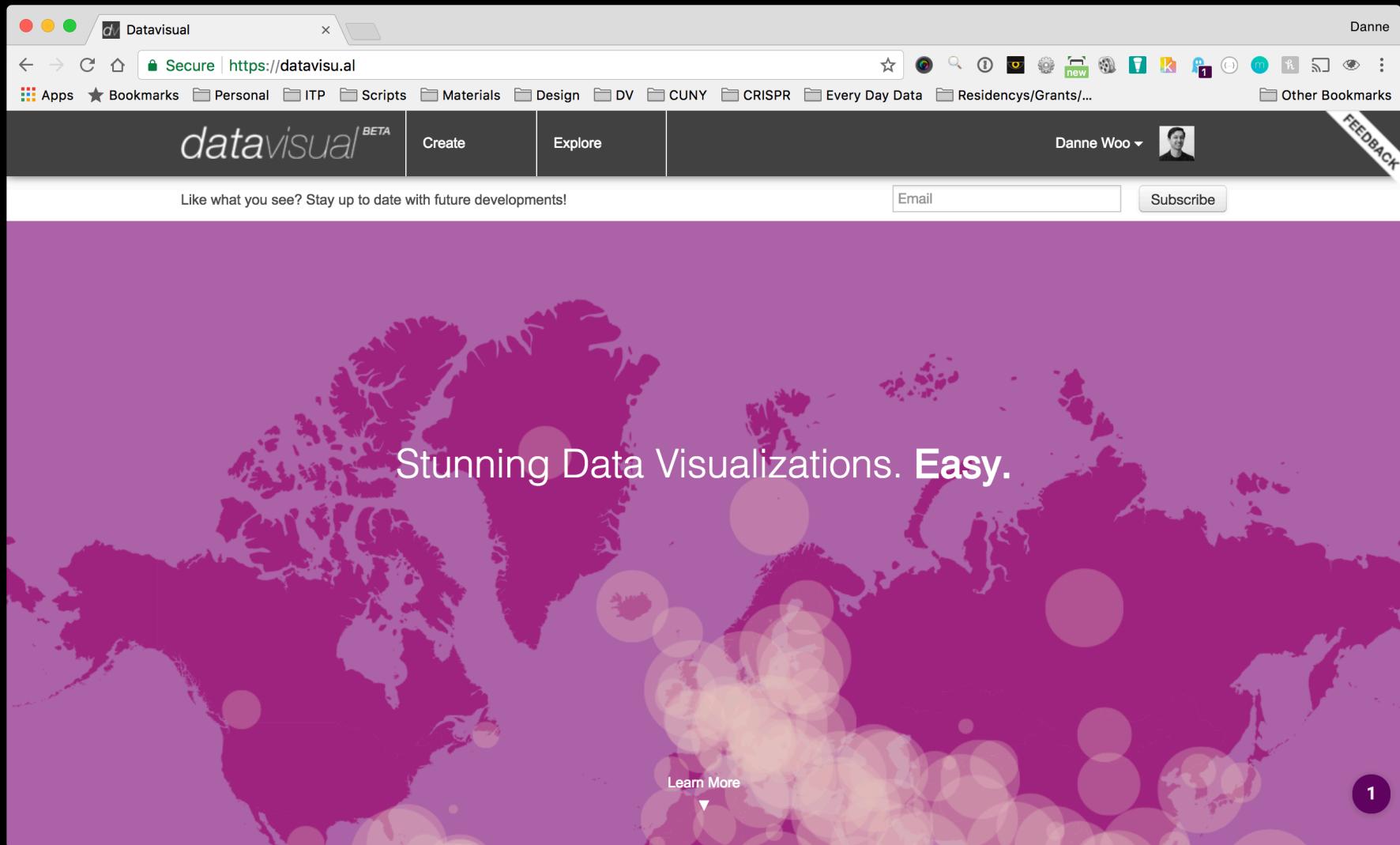


# Ethics

## Hockey Stick Chart



# Datavisual / www.datavisu.al



# Datavisual / www.datavisu.al

A screenshot of a web browser displaying the [Datavisual](https://datavisu.al) website. The browser's address bar shows the URL <https://datavisu.al>. The page features a dark purple background with a faint world map and large, semi-transparent yellow circles. At the top left is the *datavisual* logo with a BETA badge. To the right are buttons for **Create**, **SDSU Info Design**, and a user dropdown menu for **Danne Woo**. The dropdown menu includes options for **Email**, **Profile**, **Edit Settings**, and **Logout**. Below these are five items with radio buttons: **Danne Woo** (unchecked), **datavisual** (unchecked), **nydn** (unchecked), **ITP** (unchecked), and **SDSU Info Design** (checked). A small "1" is visible in the bottom right corner of the browser window.

Like what you see? Stay up to date with future developments! [Email](#)

Danne Woo ▾

Profile

Edit Settings

Logout

Danne Woo

datavisual

nydn

ITP

SDSU Info Design

Stunning Data Visualizations. **Easy.**

Learn More

1

# Datavisual / www.datavisu.al

A screenshot of a web browser displaying the [Datavisual](https://datavisu.al/) website. The URL `https://datavisu.al/#` is visible in the address bar. The page features a dark purple background with a world map silhouette and large, semi-transparent circular bubbles of various sizes and colors (yellow, orange, red, green) scattered across it. In the center, the text "Data Visualizations. Easy." is displayed in a light gray sans-serif font. At the top left, there's a navigation bar with links for "Create", "SDSU Info", and "Design". A dropdown menu is open over the "Create" button, listing ten visualization types: Column, Bar, Stacked Column, Stacked Bar, Line, Pie, Area, Scatter, Bubble, and Map. On the right side of the header, there's a user profile for "Danne Woo" with a small profile picture and a "Feedback" link. Below the header, there's a "Like what you see? Stay up to date" section with "Email" and "Subscribe" buttons. The bottom left corner shows a status bar with the text "Waiting for datavisu.al...".

# Datavisual / www.datavisual.al

Secure | https://datavisual.al/bar/

Apps Bookmarks Personal ITP Scripts Materials Design DV CUNY CRISPR Every Day Data Residencies/Grants... Other Bookmarks

danne

datavisual BETA

Create SDSU Info Design

Danne Woo

FEEDBACK

Save Export

Templates Data GUI Interact Animate Hide

Search

No Templates

### Chart Title

A grouped bar chart comparing Desktop, Mobile, and Tablet usage percentages across five companies: Apple, Google, Adobe, Yahoo, and Facebook. The Y-axis represents the percentage from 0 to 100. The legend indicates three categories: Desktop (dark purple), Mobile (medium purple), and Tablet (light purple). The data shows that Apple has the highest overall usage, while Facebook has the lowest.

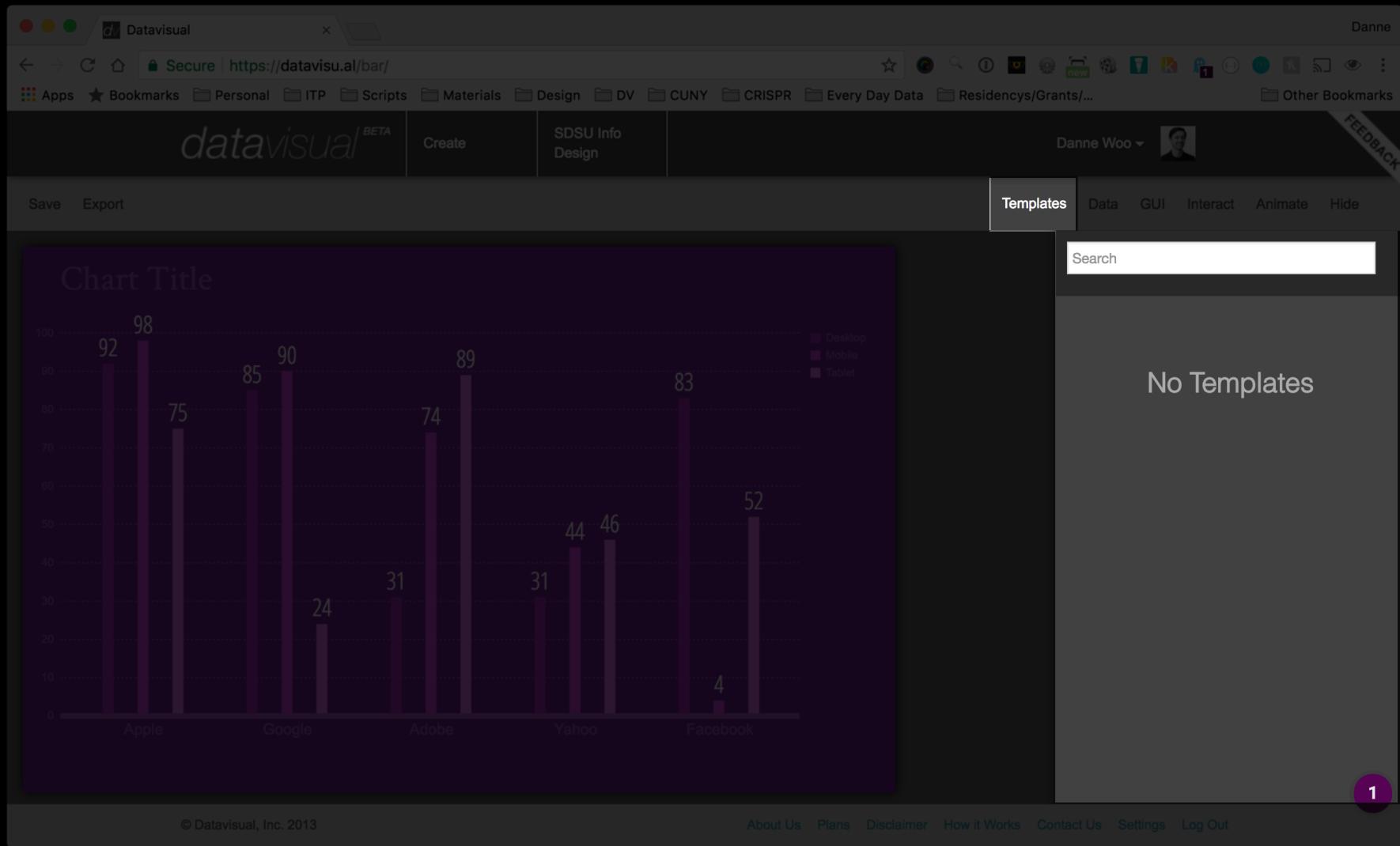
Company	Desktop	Mobile	Tablet
Apple	92	98	75
Google	85	90	24
Adobe	74	89	31
Yahoo	31	44	46
Facebook	83	52	4

© Datavisual, Inc. 2013

About Us Plans Disclaimer How it Works Contact Us Settings Log Out

1

# Datavisual / www.datavisual.al



# Datavisual / www.datavisual.al

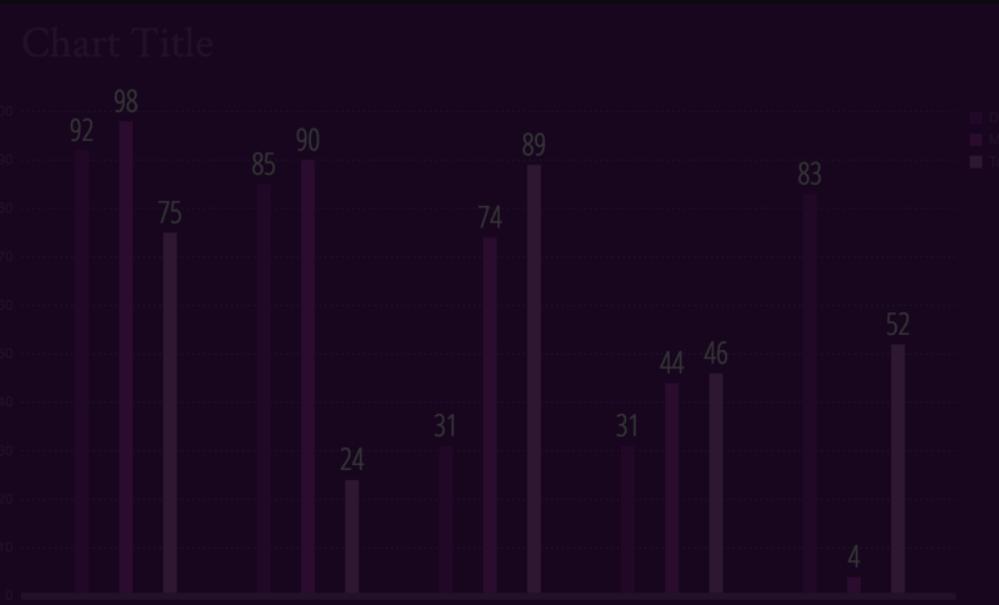
Secure | https://datavisual.al/bar/

Apps Bookmarks Personal ITP Scripts Materials Design DV CUNY CRISPR Every Day Data Residencies/Grants... Other Bookmarks

d datavisual <sup>BETA</sup> Create SDSU Info Design Danne Woo FEEDBACK

Save Export Templates Data GUI Interact Animate Hide

Chart Title



Company	Desktop	Mobile	Tablet
Apple	92	75	98
Google	85	90	24
Adobe	74	89	31
Yahoo	31	44	46
Facebook	83	52	4

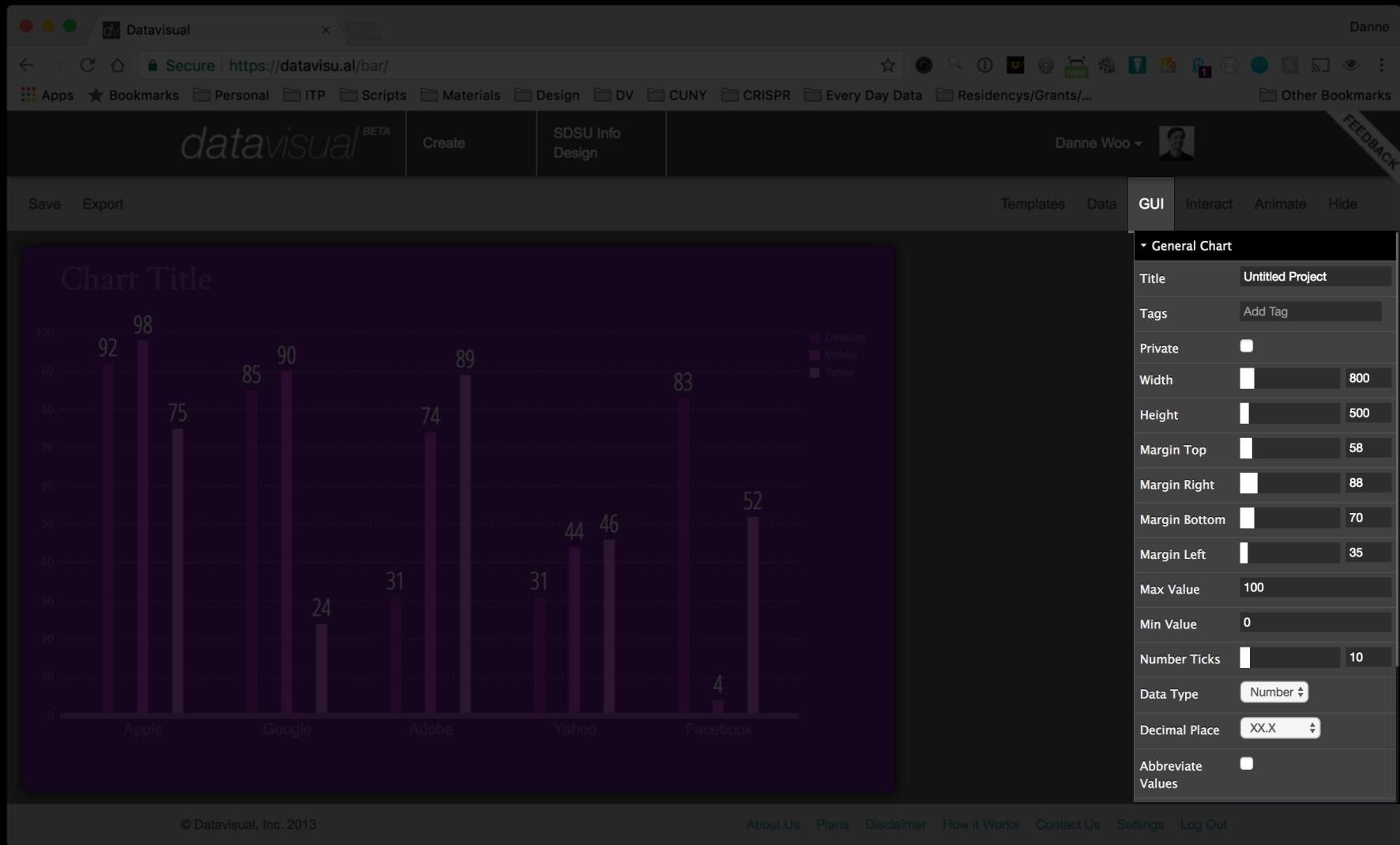
IMPORT (Excel, CSV or TSV) None Selected

Label	Bar 1	Bar 2	Bar 3
Company	Desktop	Mobile	Tablet
Apple	92	98	75
Google	85	90	24
Adobe	31	74	89
Yahoo	31	44	46
Facebook	83	4	52

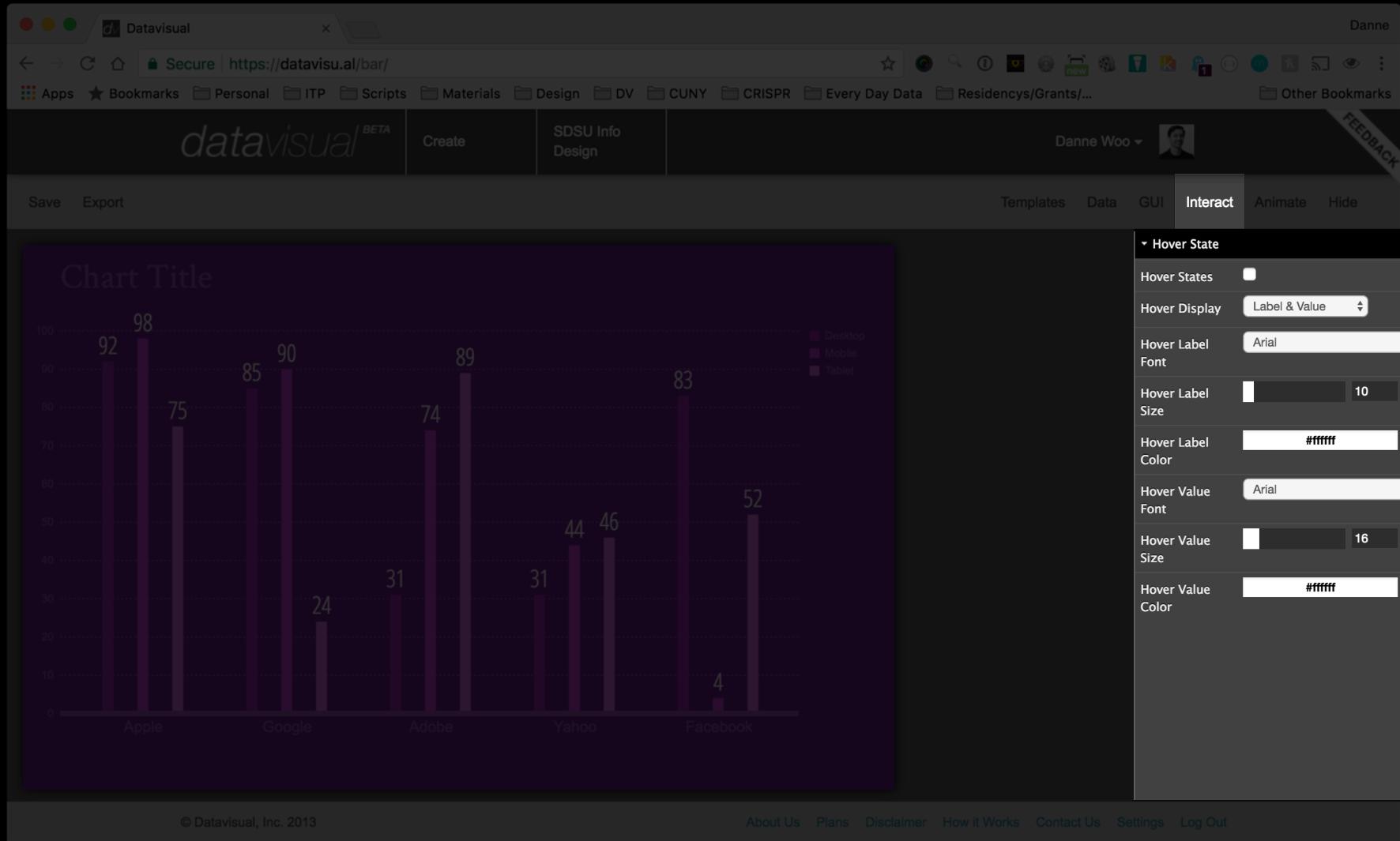
© Datavisual, Inc. 2013

About Us Plans Disclaimer How it Works Contact Us Settings Log Out

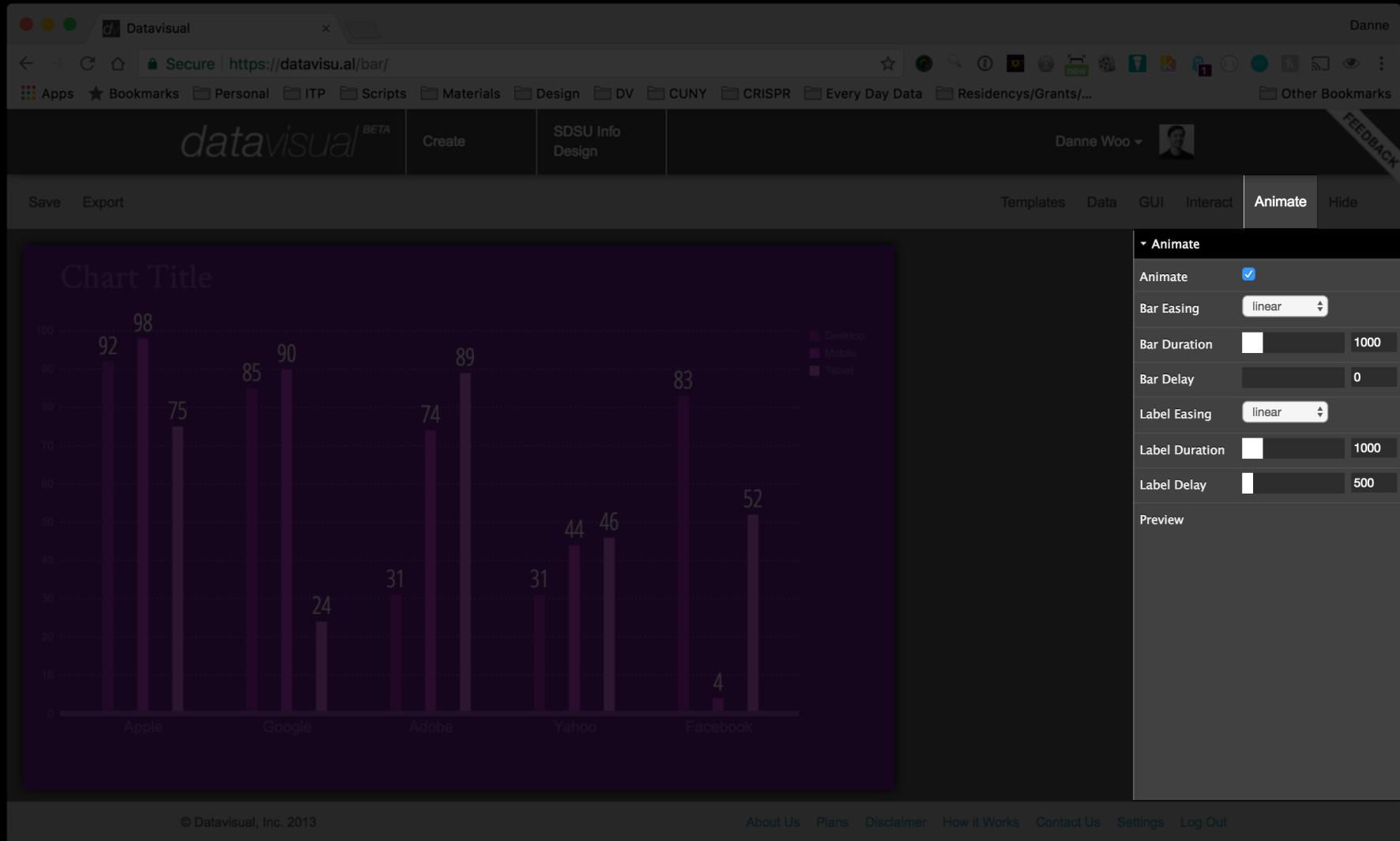
# Datavisual / www.datavisual.al



# Datavisual / www.datavisual.al



# Datavisual / www.datavisual.al



# Datavisual / www.datavisual.al

Screenshot of the Datavisual website showing a bar chart and a save menu.

The chart displays the following data:

Company	Desktop	Mobile	Tablet
Apple	85	90	73
Google	24	31	74
Adobe	31	44	89
Yahoo	46	31	74
Facebook	52	4	83

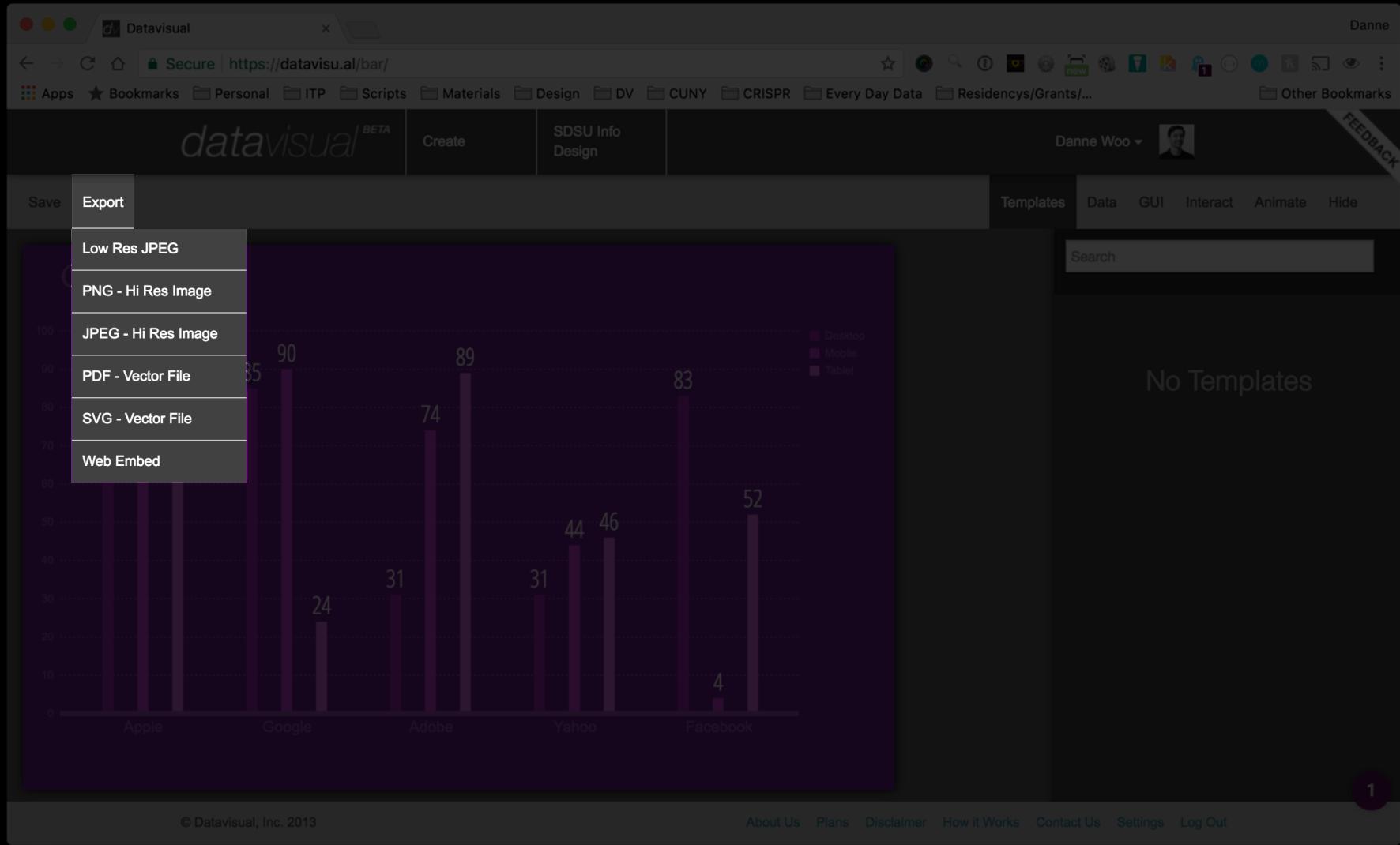
The save menu is open, showing options: Save, Save As New Chart, Save As New Template, and Save As Organization Template. The "Save" option is highlighted.

Top navigation bar: Apps, Bookmarks, Personal, ITP, Scripts, Materials, Design, DV, CUNY, CRISPR, Every Day Data, Residencies/Grants, Other Bookmarks.

User interface elements: Create, SDSU Info Design, Danne Woo, FEEDBACK, Templates, Data, GUI, Interact, Animate, Hide, Search, No Templates, and a notification badge (1).

Page footer: © Datavisual, Inc. 2013, About Us, Plans, Disclaimer, How it Works, Contact Us, Settings, Log Out.

# Datavisual / www.datavisual.al



# Datavizual Demo

A screenshot of a web browser displaying the USGS Earthquake Catalog search interface. The browser window has a dark theme with a light gray header bar. The title bar shows the URL <https://earthquake.usgs.gov/earthquakes/search/>. The address bar includes a lock icon indicating a secure connection. Below the address bar is a toolbar with various icons for file operations and bookmarks. The main content area features the USGS logo and a background image of a seismograph wave. A blue header bar at the top says "Earthquake Hazards Program". On the left, a sidebar menu lists options like "Latest Earthquakes", "Earthquake Lists, Maps & Statistics", "Search Earthquake Catalog" (which is selected and highlighted in gray), "Real-time Feeds & Notifications", "Information by Region", and "ANSS ComCat Documentation". The main content area has a title "Search Earthquake Catalog". It contains a note about search results being limited to 20,000 events and provides links to "Help", "ANSS Comprehensive Earthquake Catalog (ComCat) Documentation", "Developer's Corner - bulk access to catalog, tools for obtaining specific products", and "Significant Earthquakes Archive". Below this is a section titled "Basic Options" with three columns: "Magnitude" (radio buttons for 2.5+, 4.5+, or Custom, with 2.5+ selected), "Date & Time" (radio buttons for Past 7 Days, Past 30 Days, or Custom, with Past 7 Days selected), and "Geographic Region" (radio buttons for World, Conterminous U.S.<sup>1</sup>, or Custom, with World selected). A sidebar on the far left also lists "Earthquakes" and "Hazards".

Earthquake Hazards Program

Earthquakes

Search Earthquake Catalog

Search results are limited to 20,000 events. To get URL for a search, click the search button, then copy the URL from the browser address bar.

- [Help](#)
- [ANSS Comprehensive Earthquake Catalog \(ComCat\) Documentation](#)
- [Developer's Corner - bulk access to catalog, tools for obtaining specific products](#)
- [Significant Earthquakes Archive](#)

### Basic Options

Magnitude	Date & Time	Geographic Region
<input checked="" type="radio"/> 2.5+	<input checked="" type="radio"/> Past 7 Days	<input checked="" type="radio"/> World
<input type="radio"/> 4.5+	<input type="radio"/> Past 30 Days	<input type="radio"/> Conterminous U.S. <sup>1</sup>
<input type="radio"/> Custom	<input type="radio"/> Custom	<input type="radio"/> Custom

Earthquakes

Hazards

# Beyond Visualization

Other Senses:

Sound

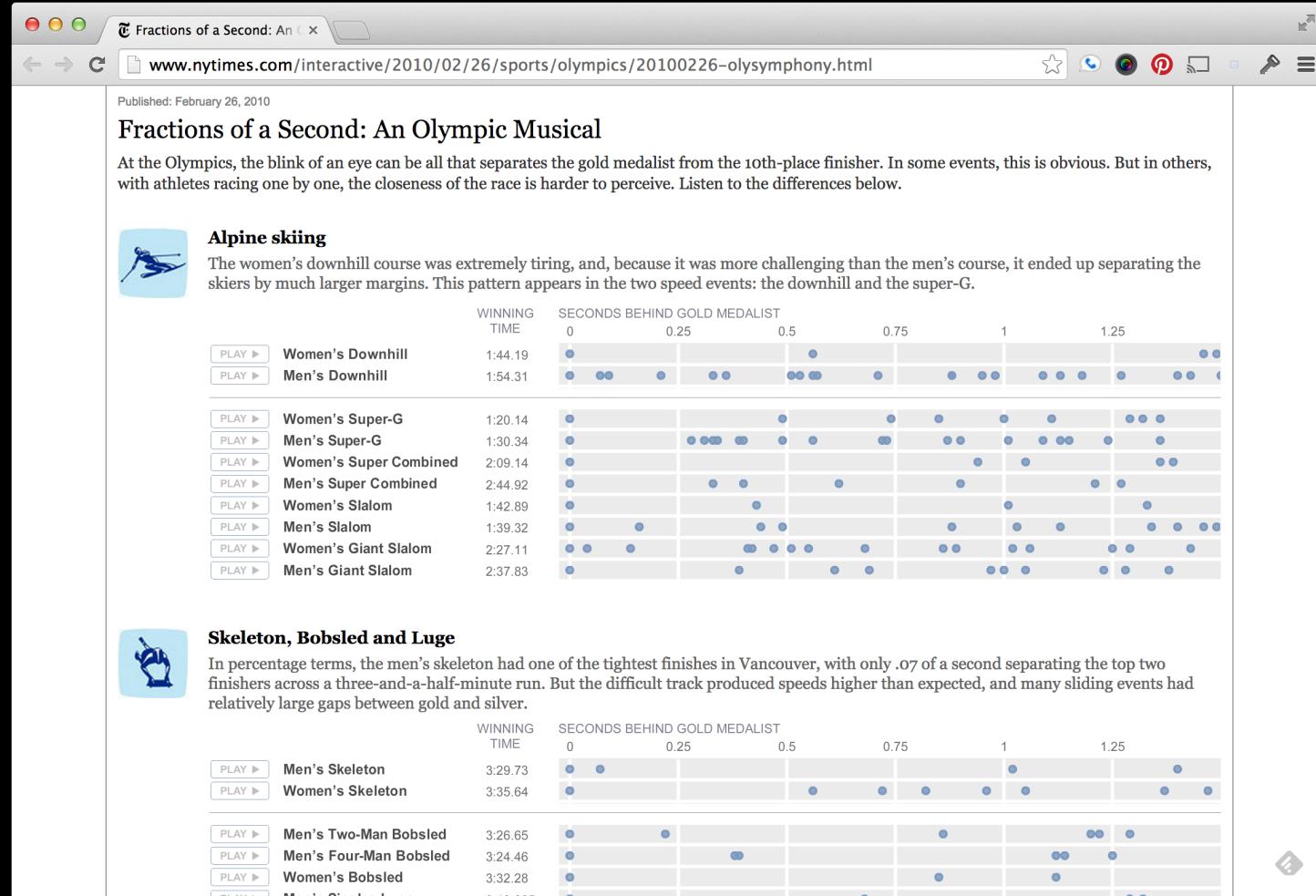
Taste

Feel

Smell

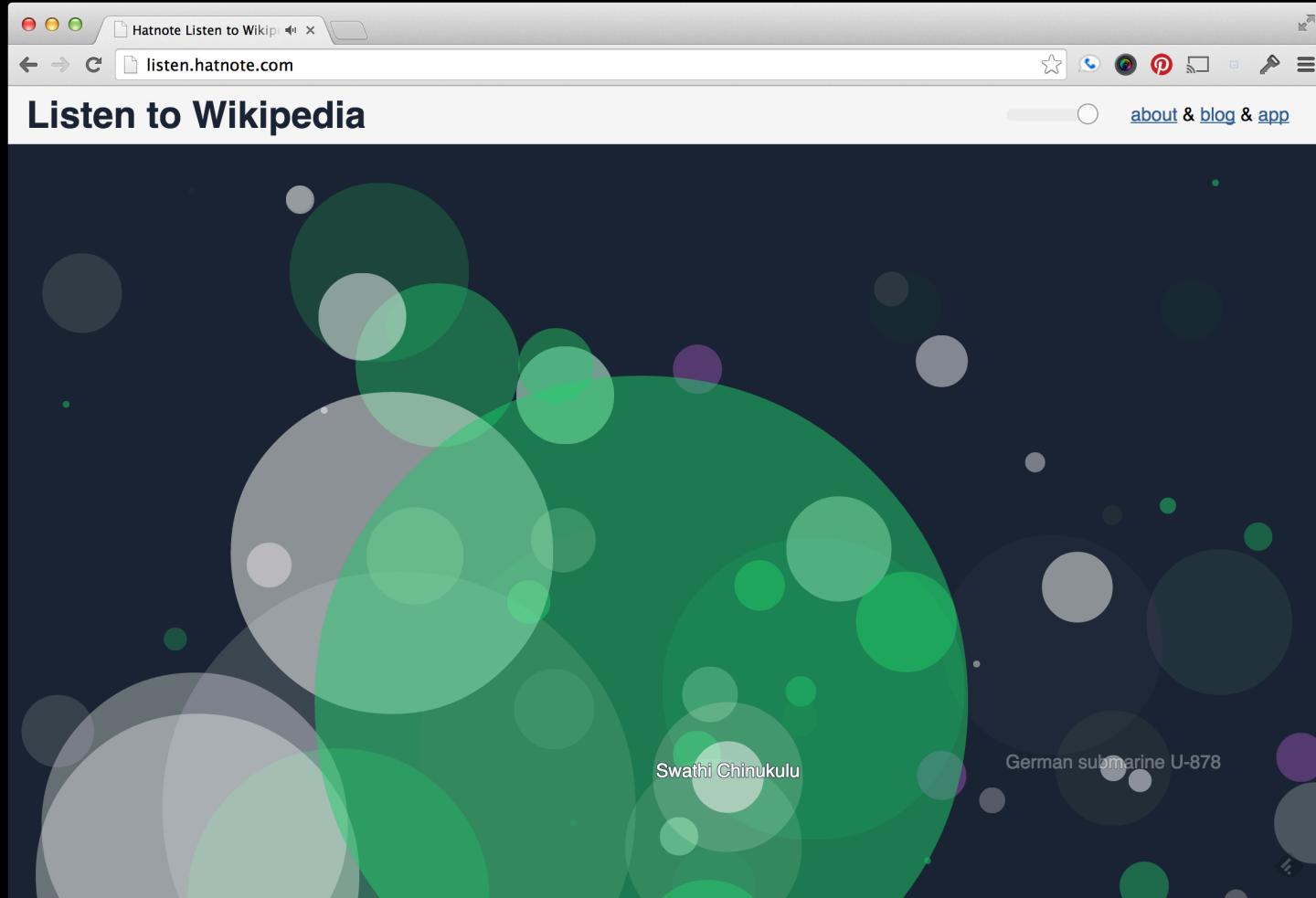
# Hearing Data

## NY Times – Fractions of a Second: An Olympic Musical



# Hearing Data

Listen to Wikipedia



# Tasting Data

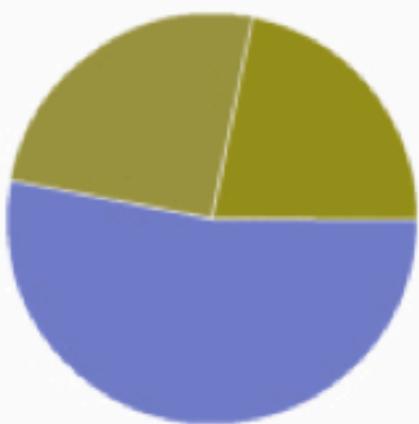
Annelie Berner – World Happiness Report



# Feeling Data

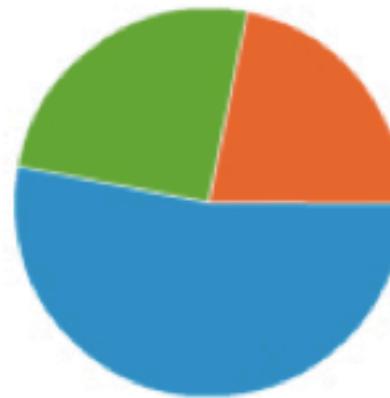
Steve Cordova - Tactus

## COLORBLIND



- **Search Engines**  
775.00 (53.01%)
- **Direct Traffic**  
368.00 (25.17%)
- **Referring Sites**  
319.00 (21.82%)

## NORMAL VISION



- **Search Engines**  
775.00 (53.01%)
- **Direct Traffic**  
368.00 (25.17%)
- **Referring Sites**  
319.00 (21.82%)

Source: Google Analytics

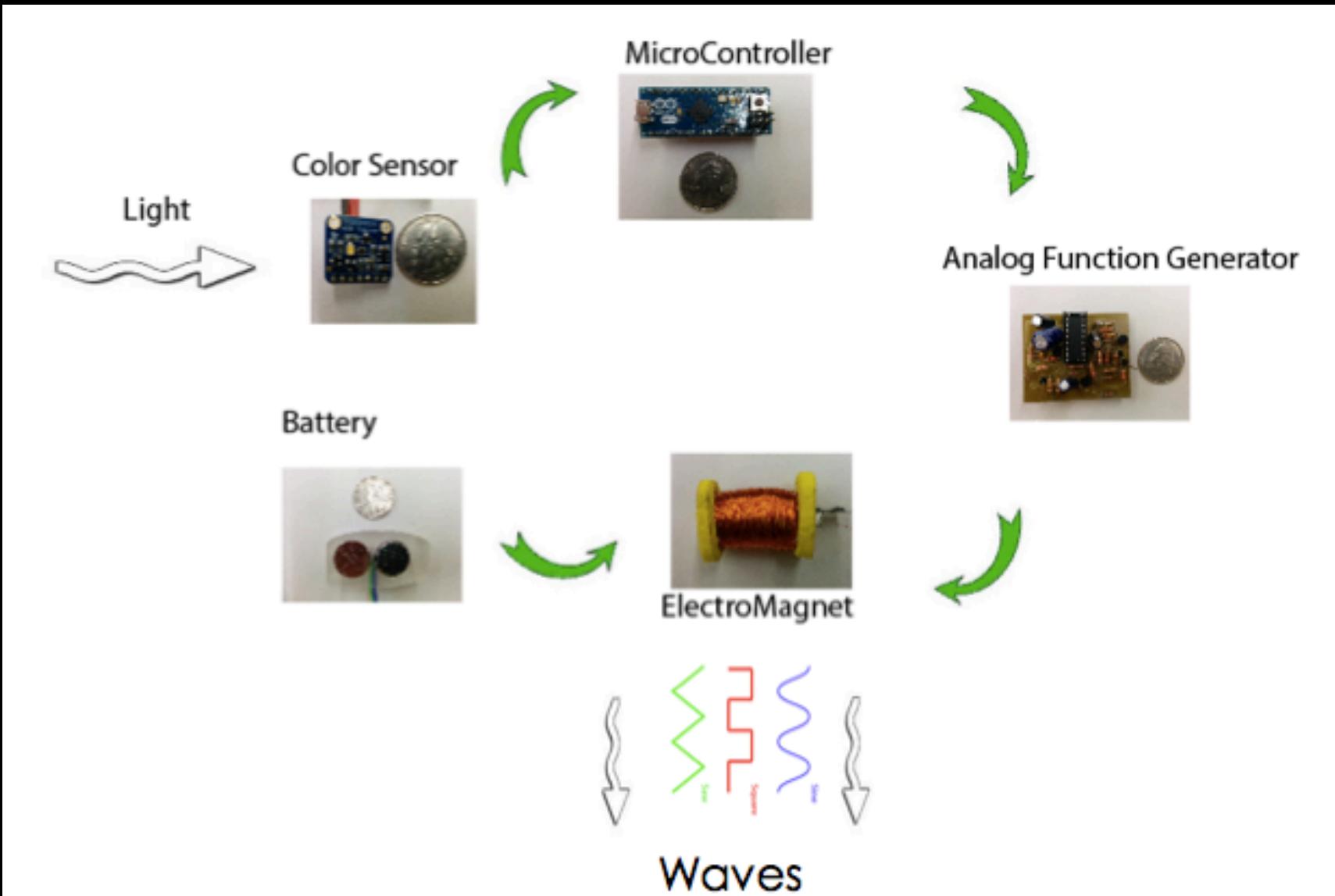
# Feeling Data

Steve Cordova - Tactus



# Feeling Data

Steve Cordova - Tactus



# Feeling Data

Steve Cordova - Tactus



# Smelling Data

Famous Deaths



# Data Art

Roopa Vasudevan – Grillz



**"JUICY"**  
*THE NOTORIOUS B.I.G., 1994*



the notorious b.i.g., "juicy"

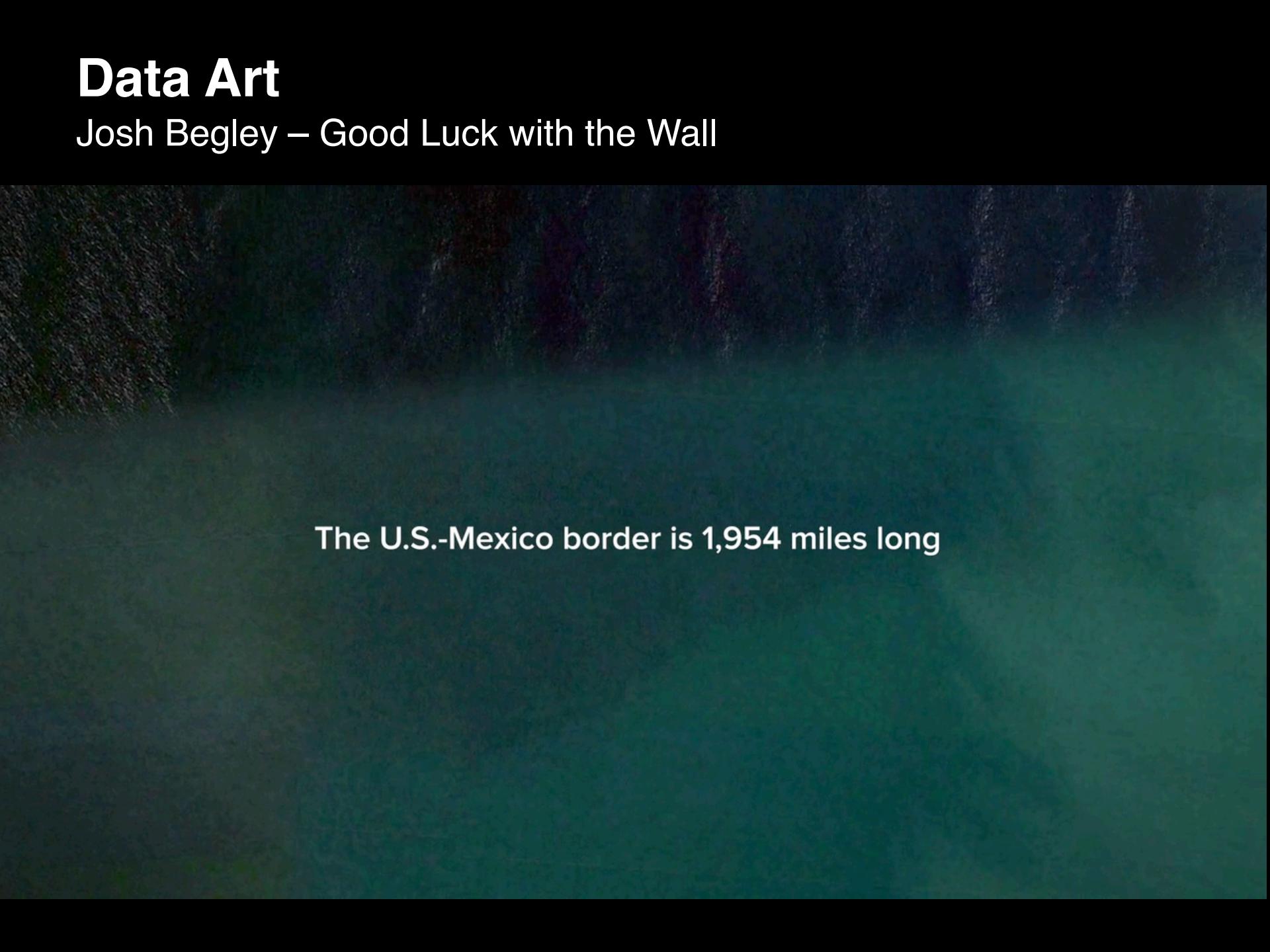
# Data Art

Josh Begley – Empire



# Data Art

Josh Begley – Good Luck with the Wall



The U.S.-Mexico border is 1,954 miles long

# Data Art

Rafael Lozano Hemmer – Pulse Park



# Data Art

Charles Sowers – Tidal Memory



# Data Art

Dan Goods – Pulse

