



UNIVERSITY OF
BIRMINGHAM

Visualisation

Week 2

Visual Perception

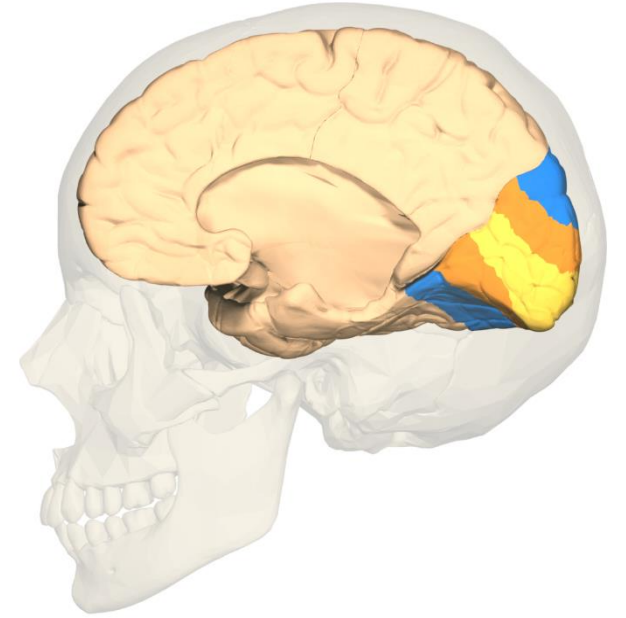
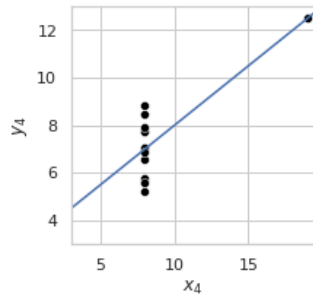
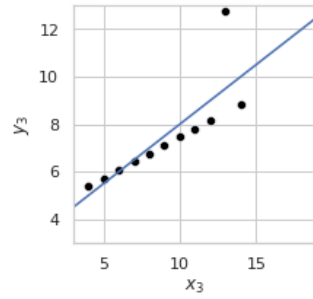
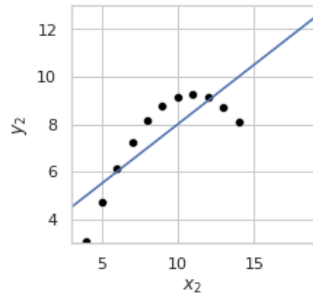
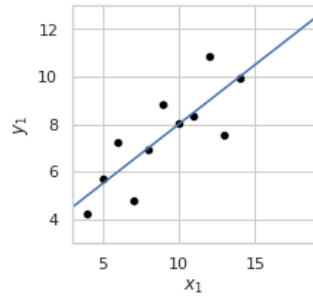
x_1	y_1
10	8.04
8	6.95
13	7.58
9	8.81
11	8.33
14	9.96
6	7.24
4	4.26
12	10.84
7	4.82
5	5.68

x_2	y_2
10	9.14
8	8.14
13	8.74
9	8.77
11	9.26
14	8.1
6	6.13
4	3.1
12	9.13
7	7.26
5	4.74

x_3	y_3
10	7.46
8	6.77
13	12.74
9	7.11
11	7.81
14	8.84
6	6.08
4	5.39
12	8.15
7	6.42
5	5.73

x_4	y_4
8	6.58
8	5.76
8	7.71
8	8.84
8	8.47
8	7.04
8	5.25
19	12.5
8	5.56
8	7.91
8	6.89

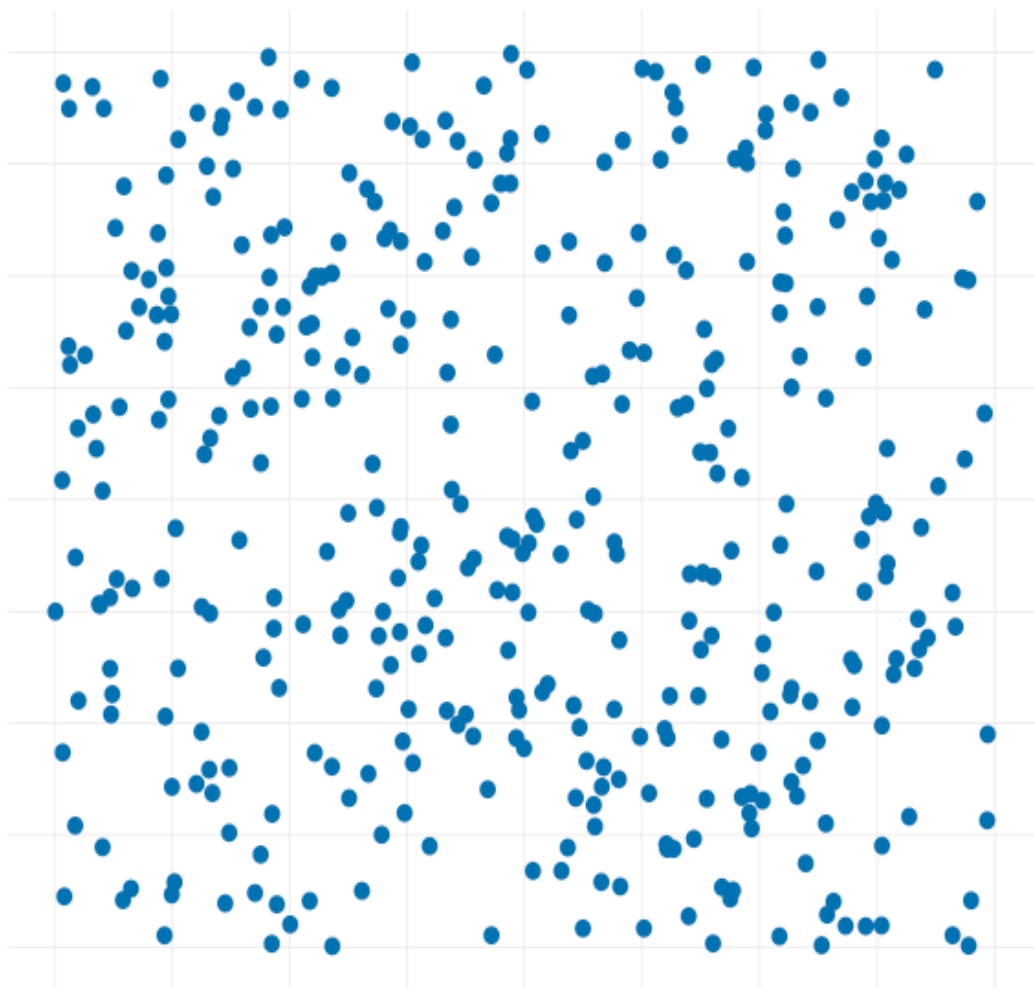
Encode



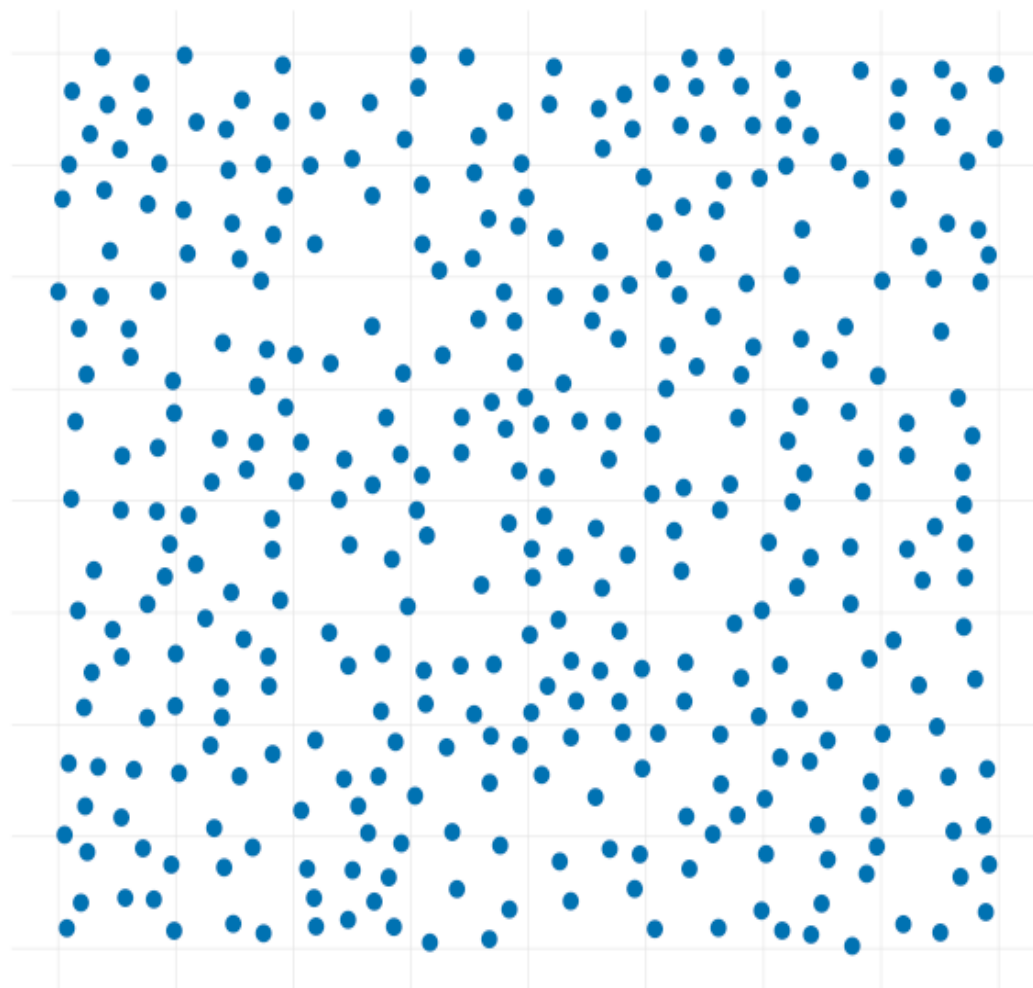
Perceiving Structure

What Groups?

Poisson



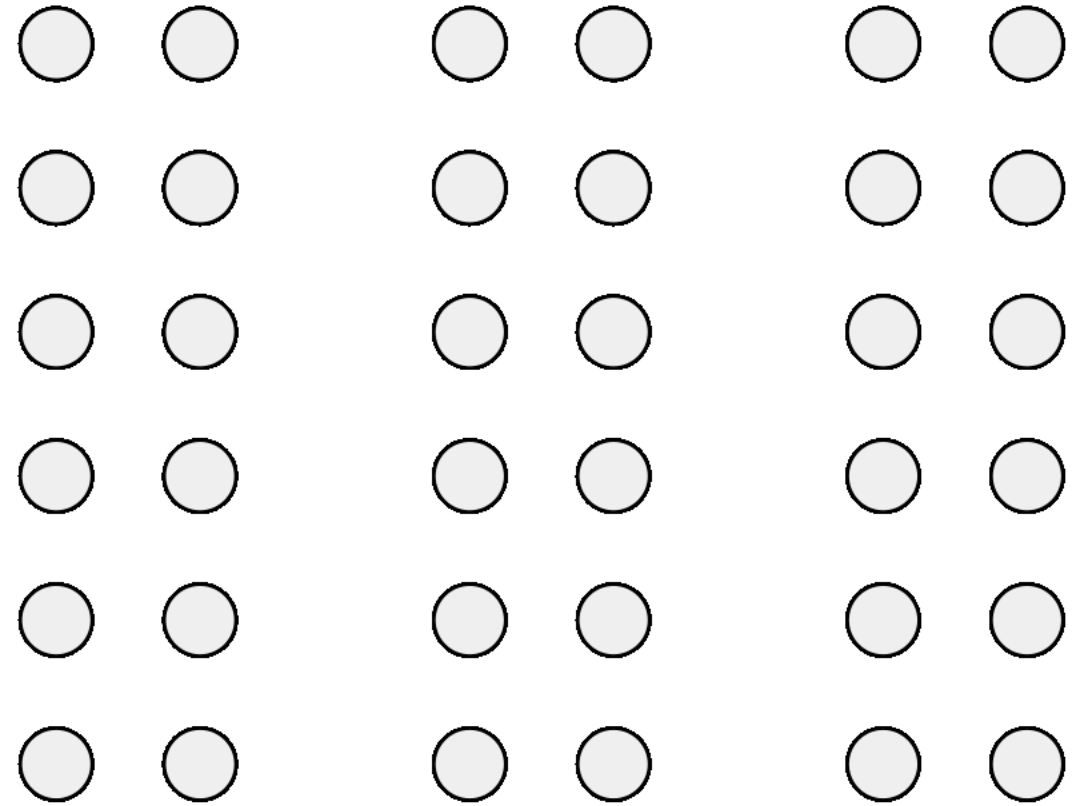
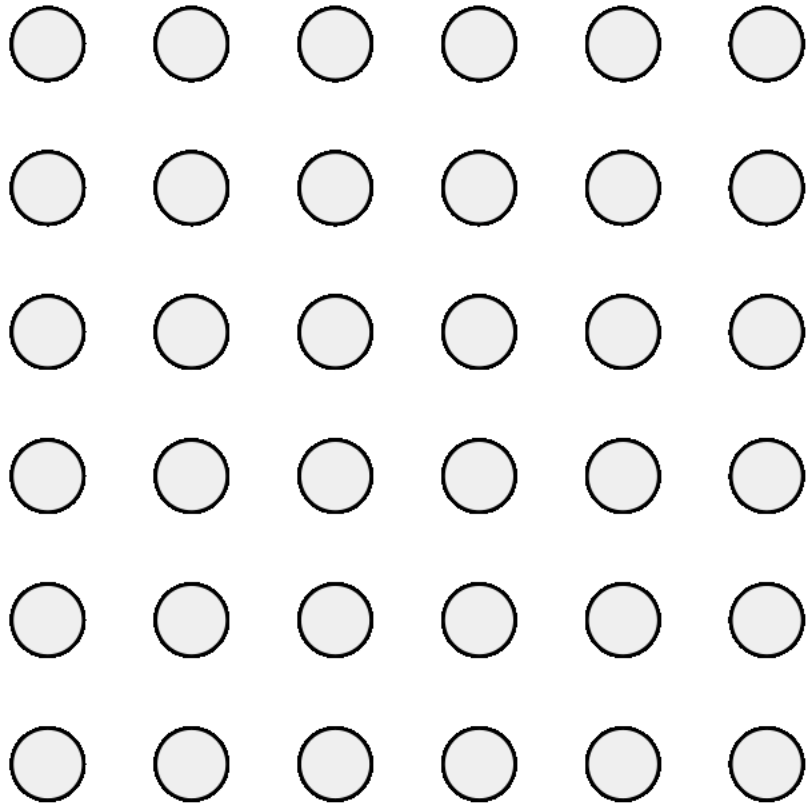
Matérn



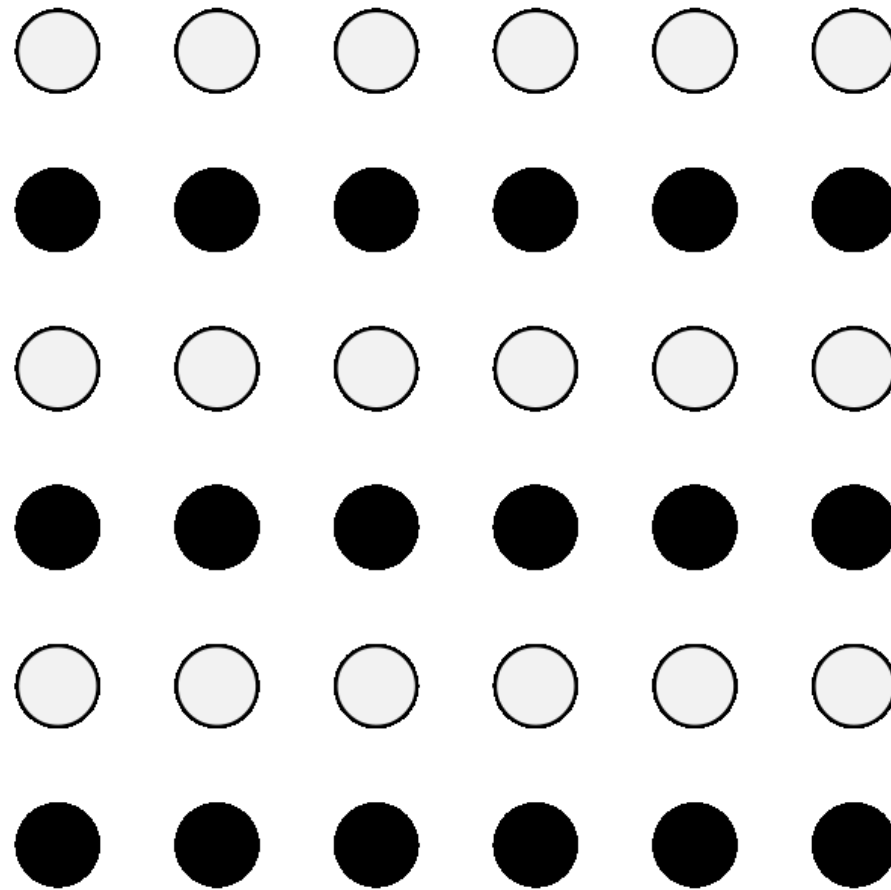
Gestalt Principles

What Belongs Together?

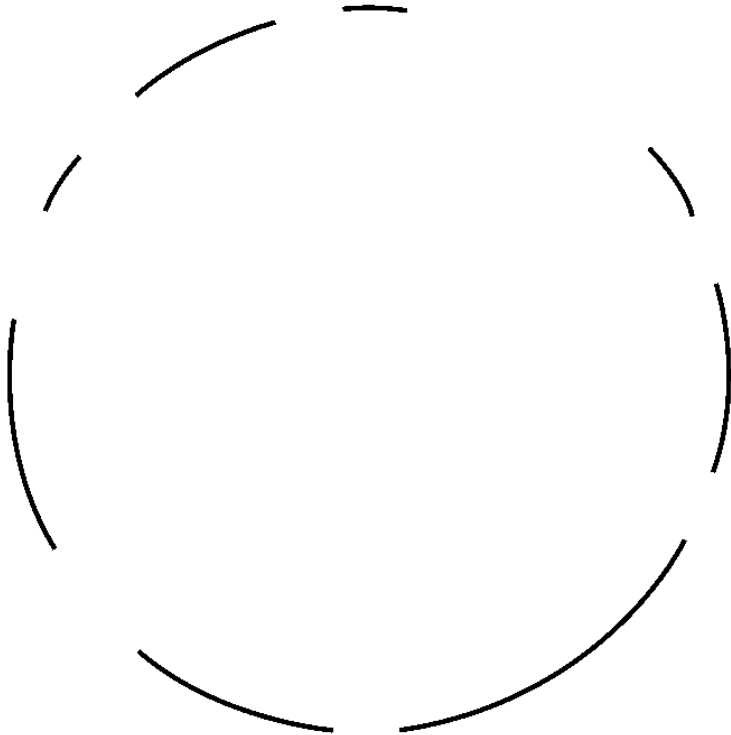
Law of Proximity



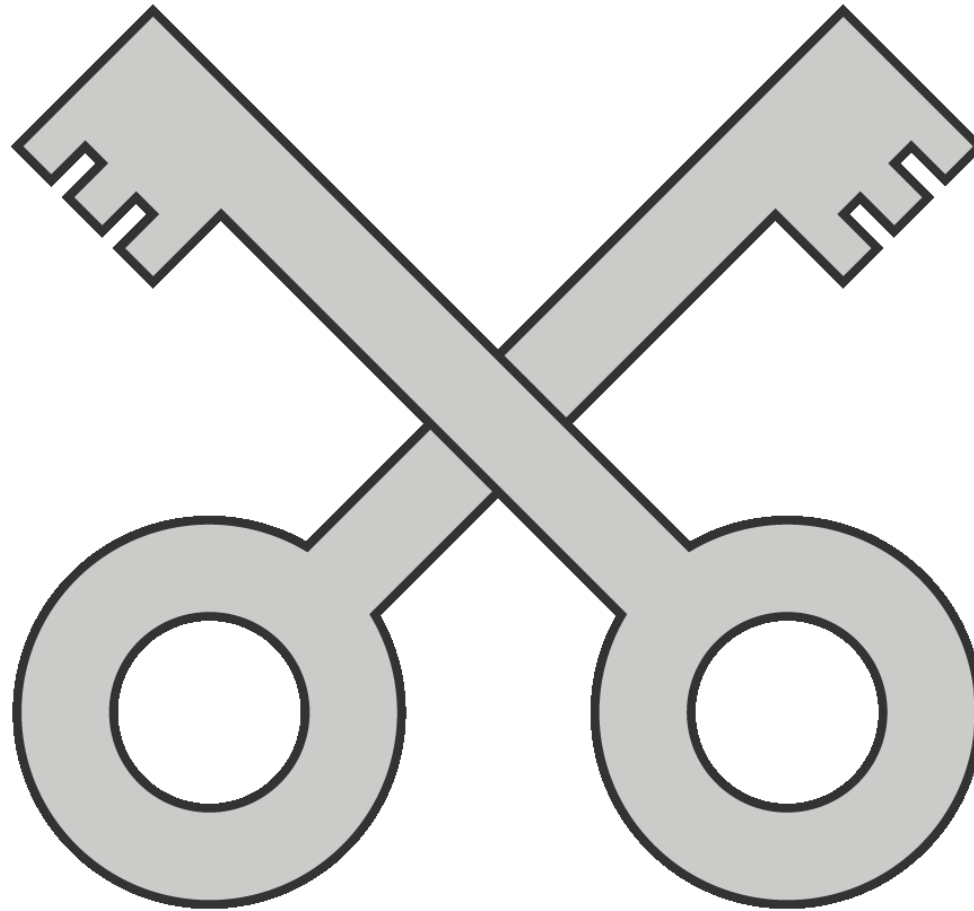
Law of Similarity



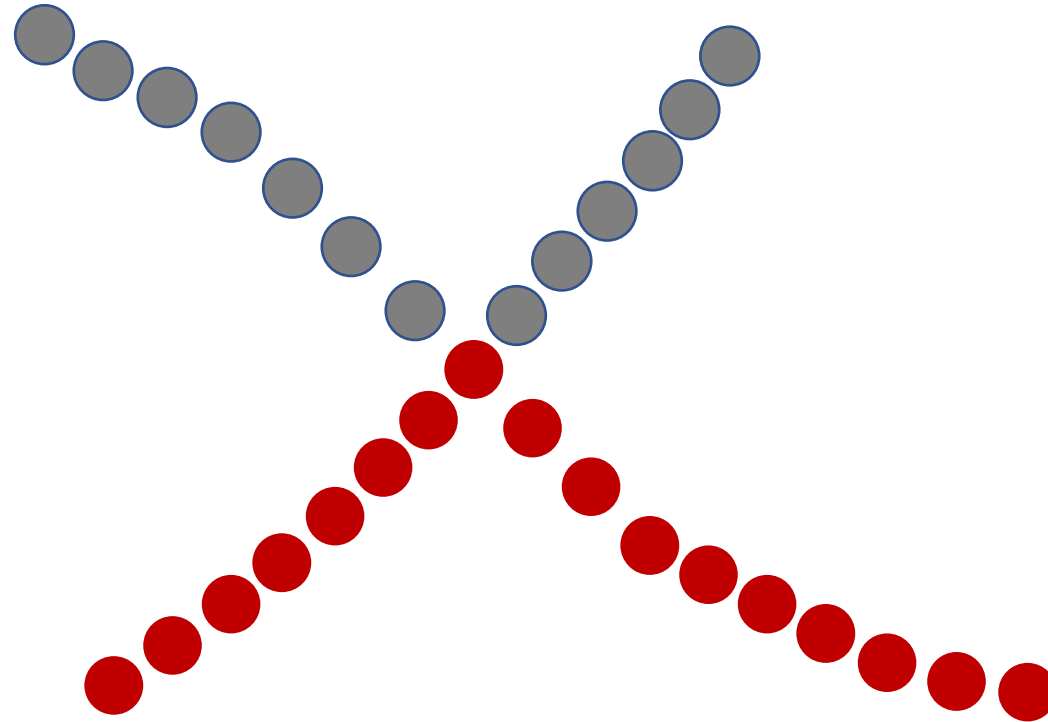
Law of Closure



Law of Good Continuation



Law of Good Continuation

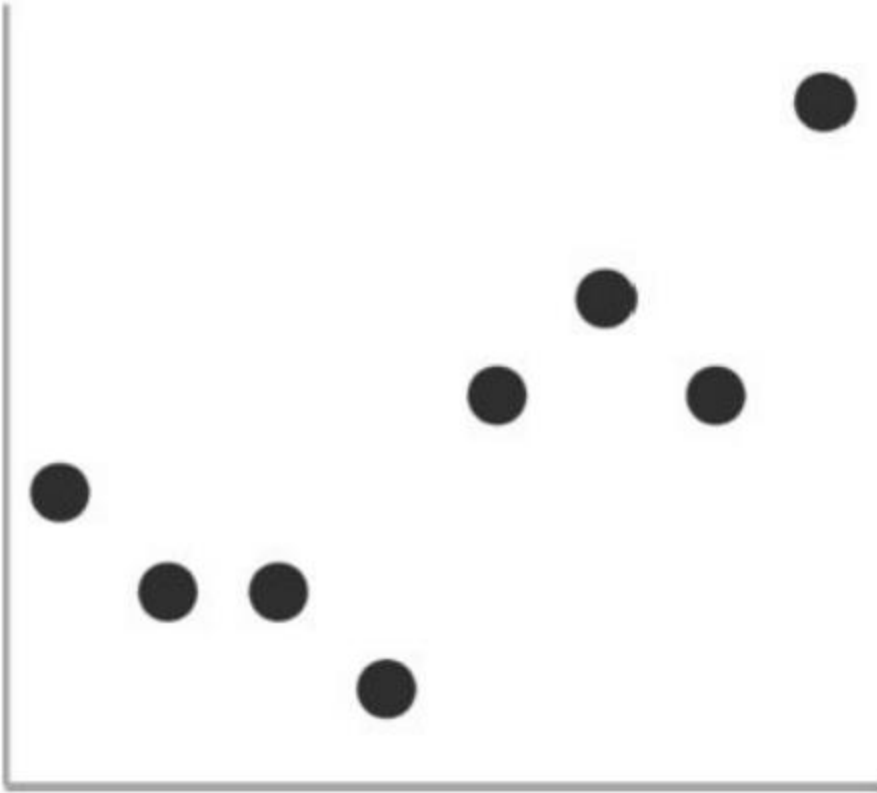


Law of Symmetry

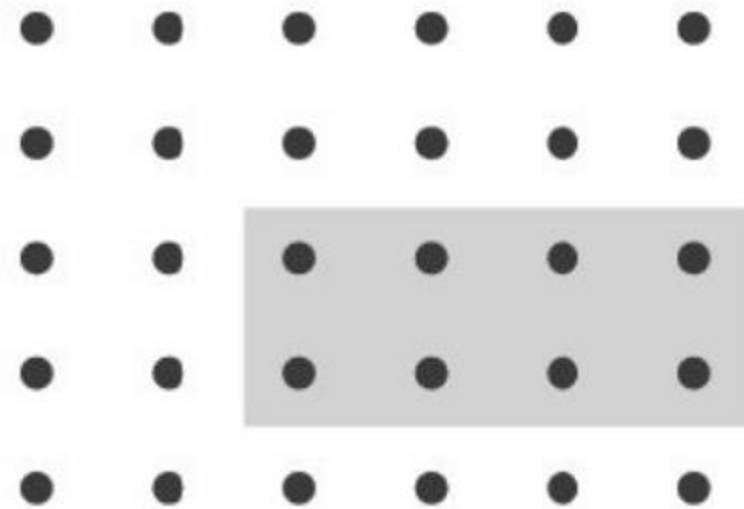
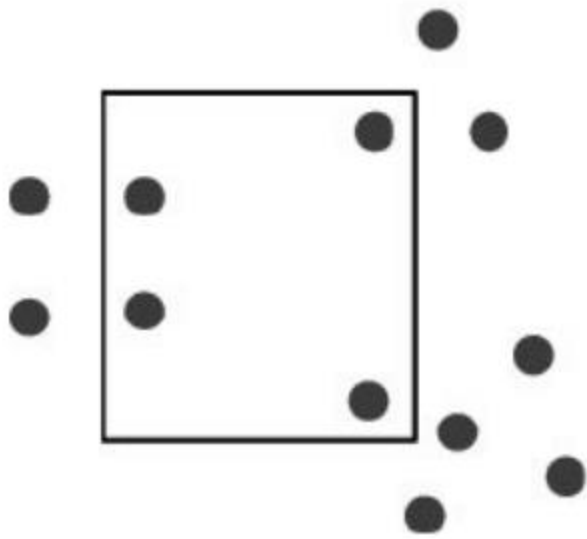
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Law of Connection



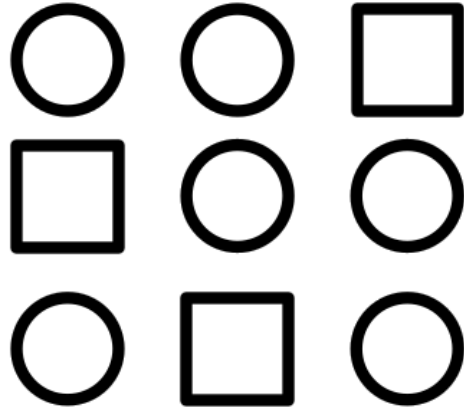
Law of Enclosure

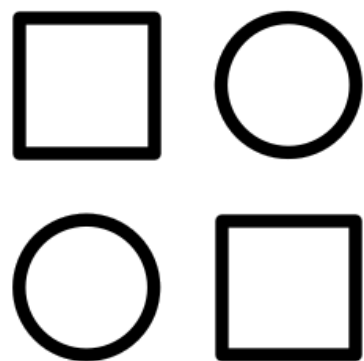


Hierarchy



Hierarchy





Preattentive Attributes

What Pops?

756395068473

6586663037576

860372658602

846589107830

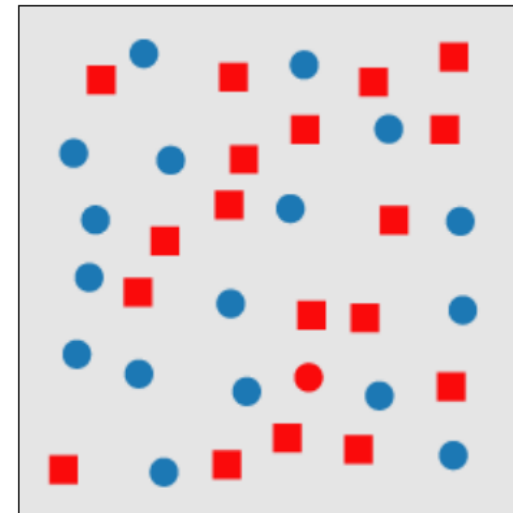
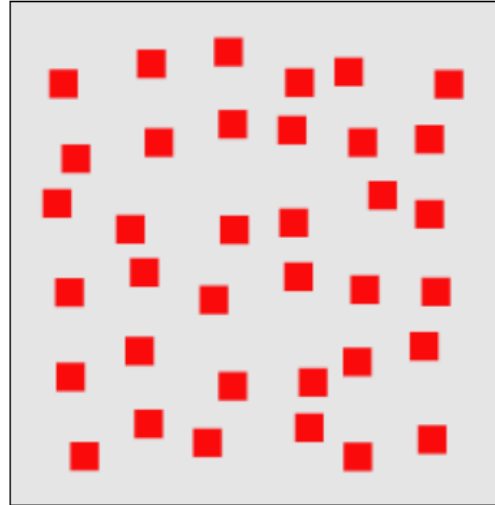
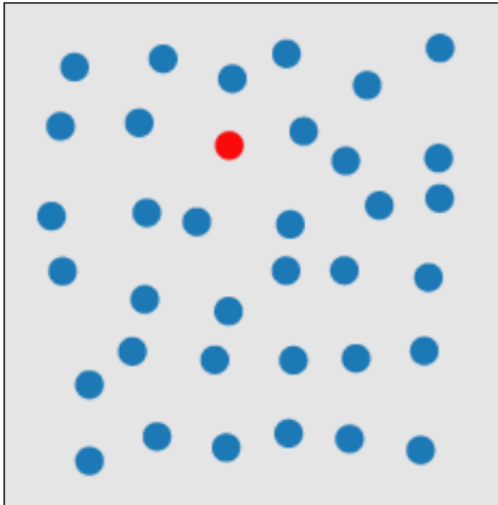
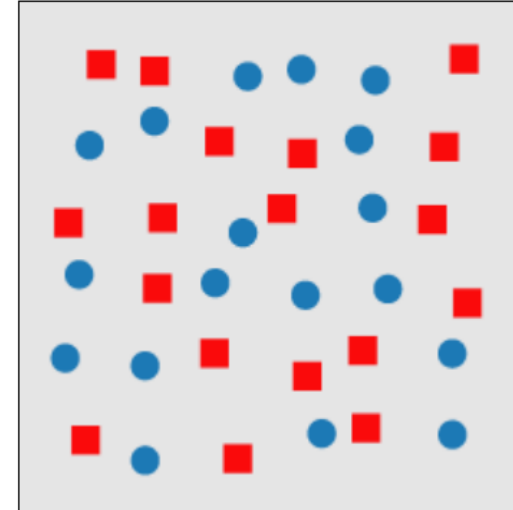
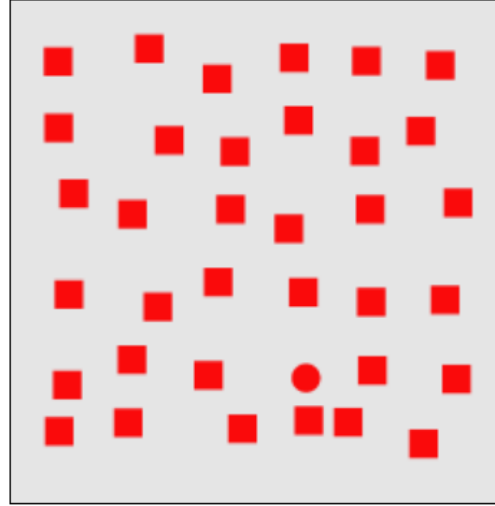
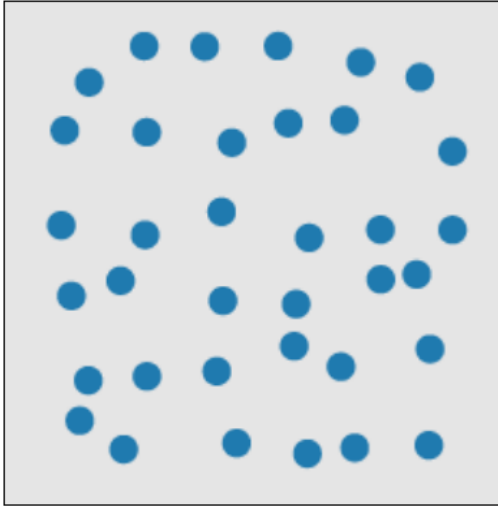
756**3**9506847**3**

65866**3**0**3**7576

860**3**72658602

8465891078**3**0

Preattentive Attributes



Colour Shape Conjoin

Exposure: 200 msec

Elements: 25

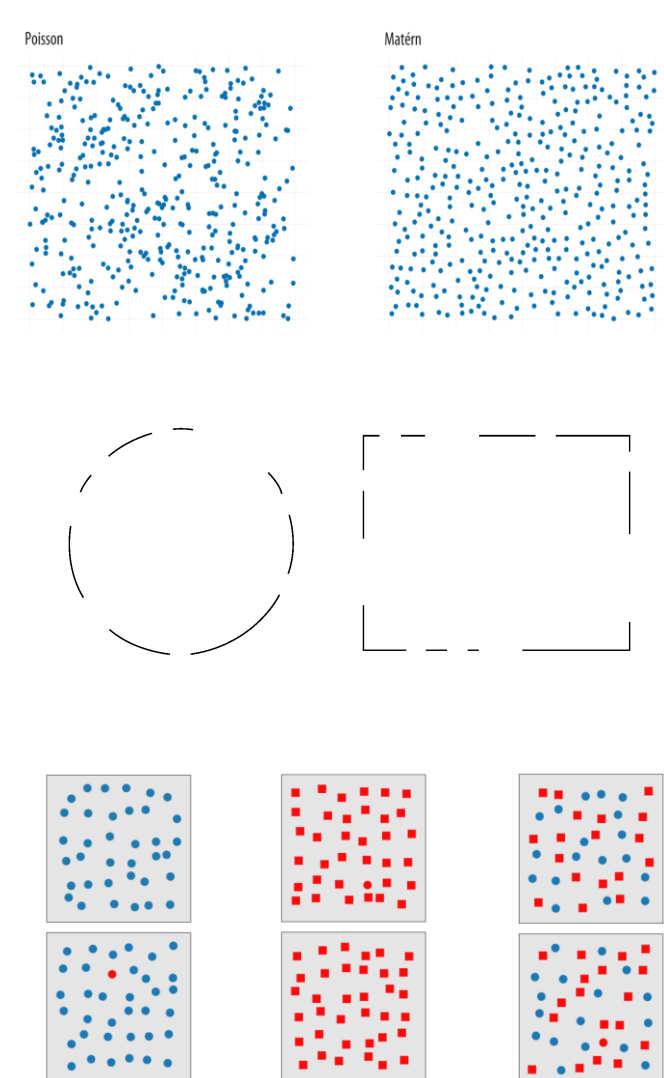
Trials: 4

Start Stop

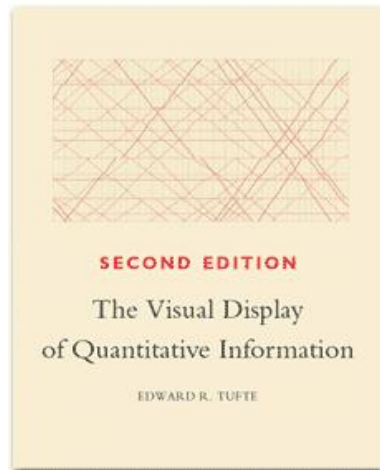
Christopher G. Healy
www.csc2.ncsu.edu/faculty/healey/PP/

Summary

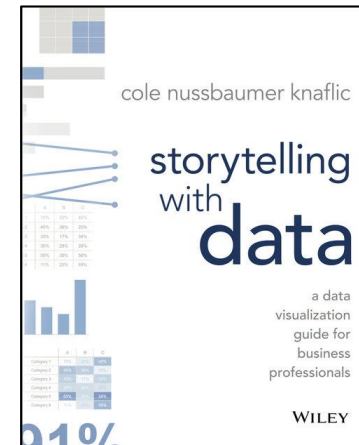
- We perceive **randomness as structured**.
- **Gestalt laws** describe what we perceive as belonging together.
- **Preattentive attributes** make objects stand out.
- They guide our attention.
 - Works less well when the background differs in multiple attributes.



How to Apply This? – The Next Video



Edward Tufte (2001)[1983]



Nussbaumer Knaflic (2015)