

Why we visualise

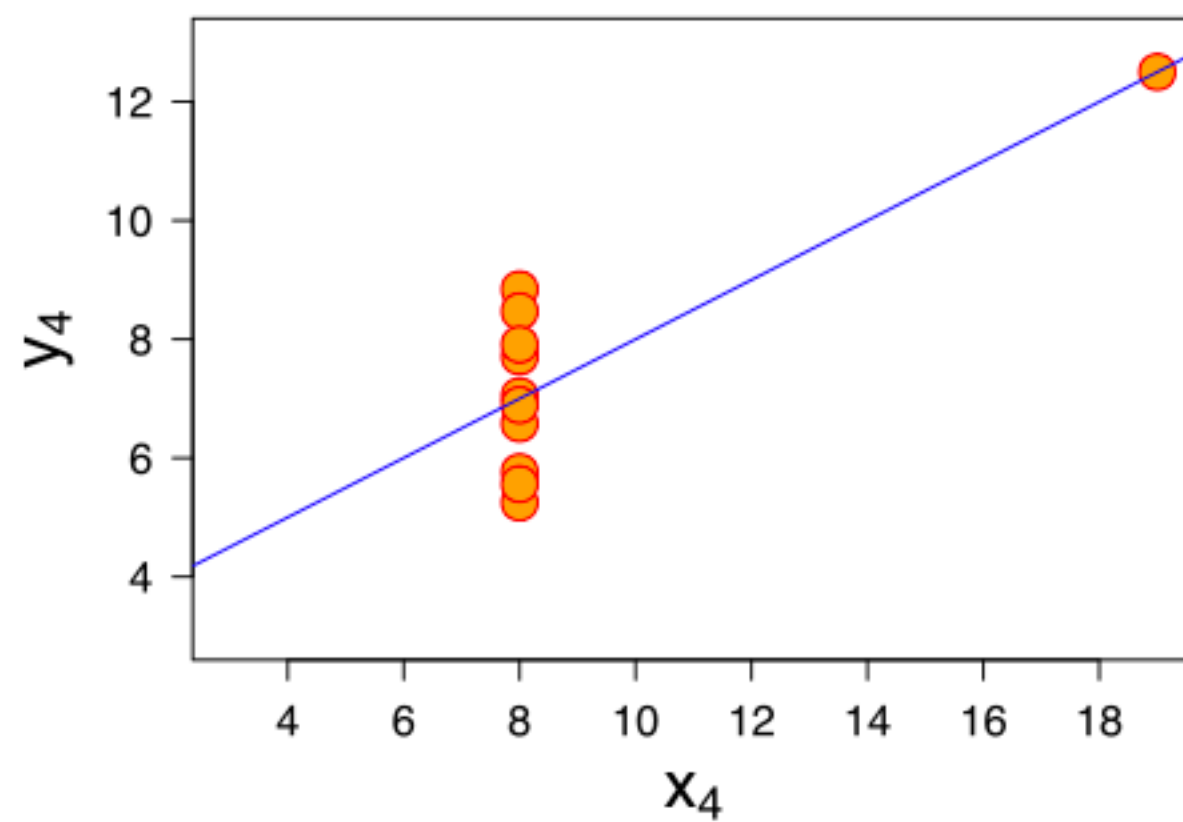
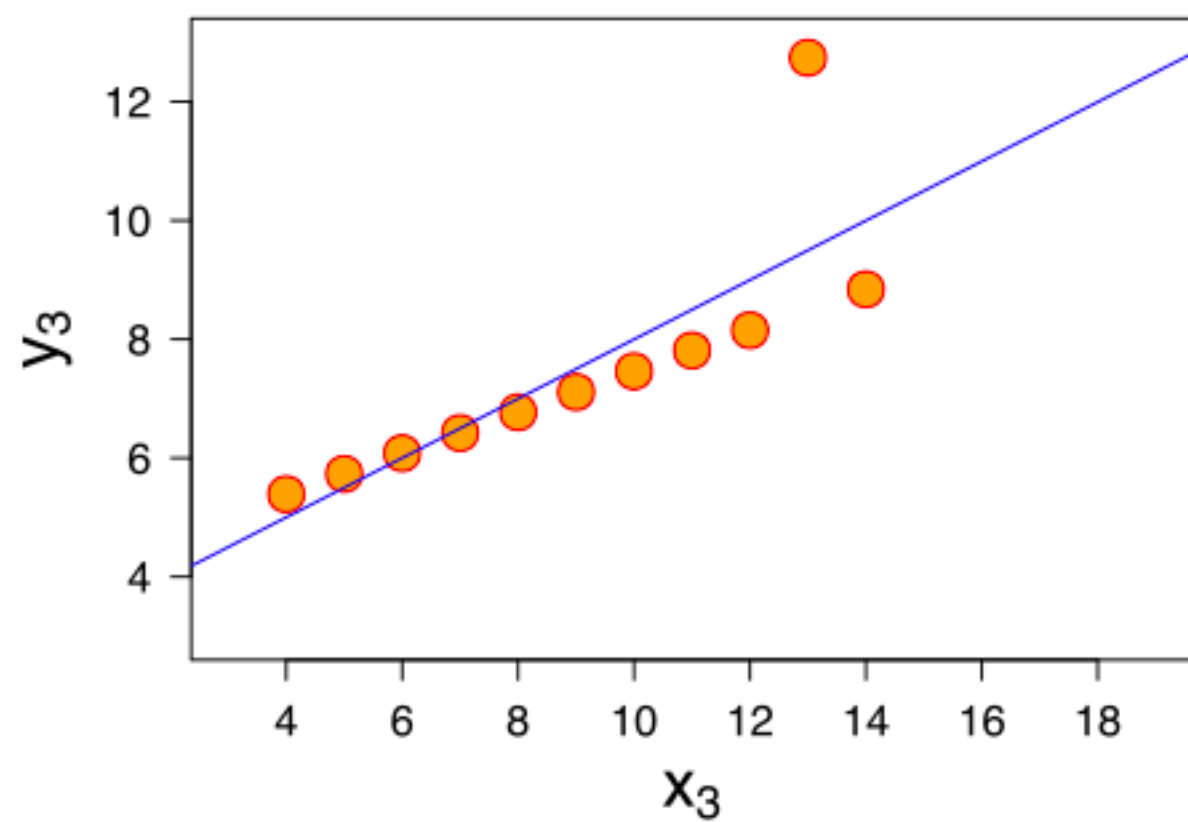
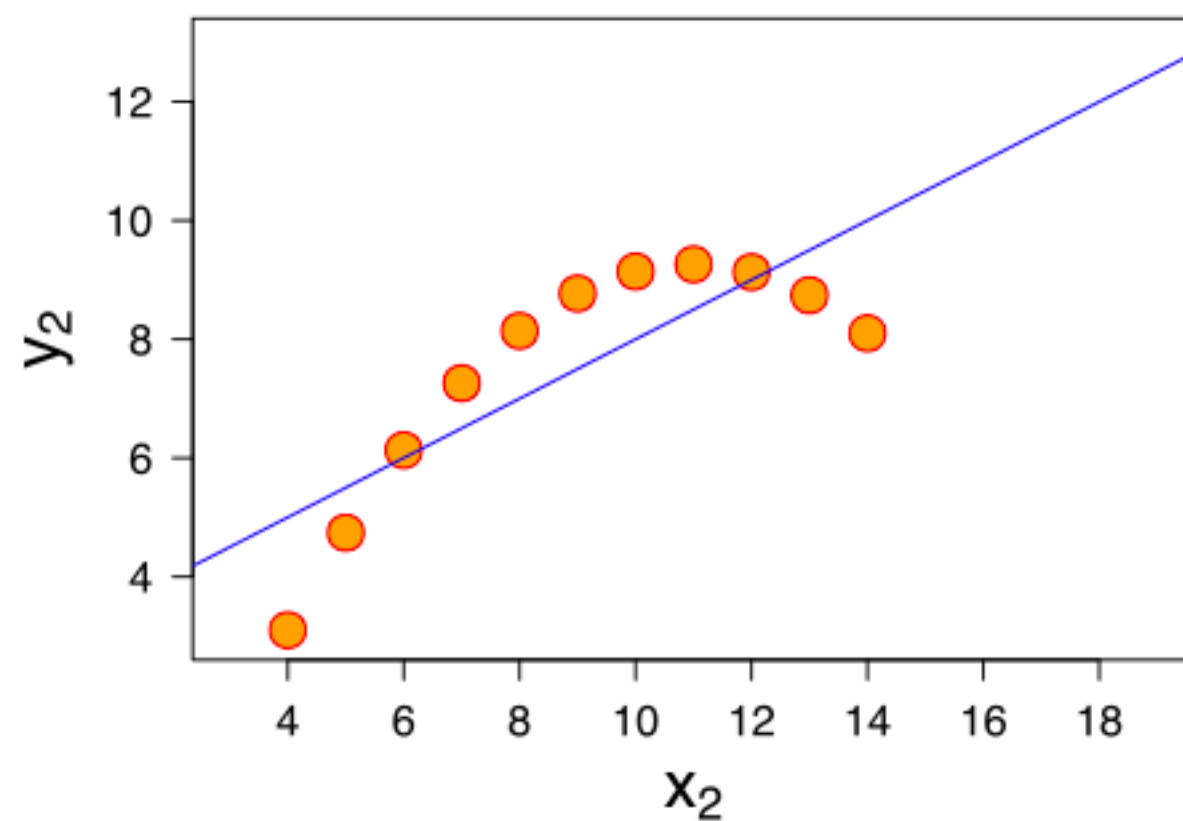
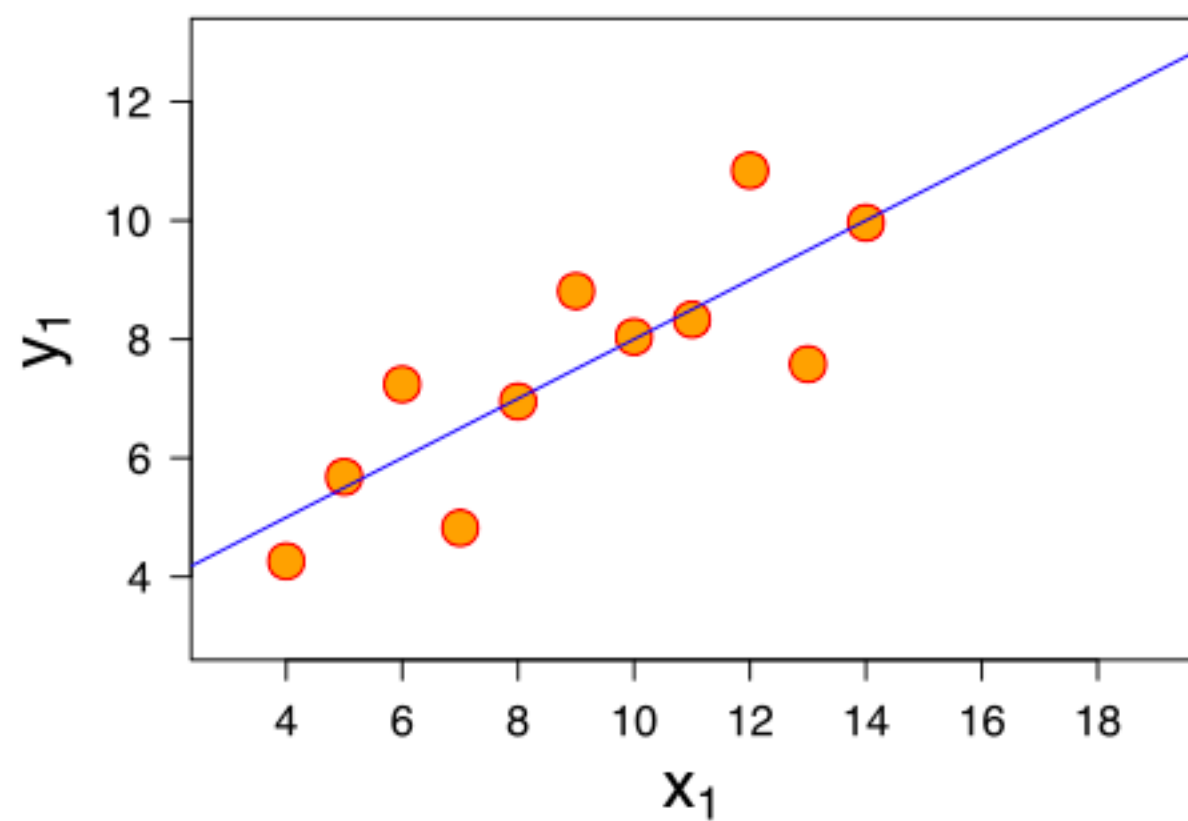
Visual Perception

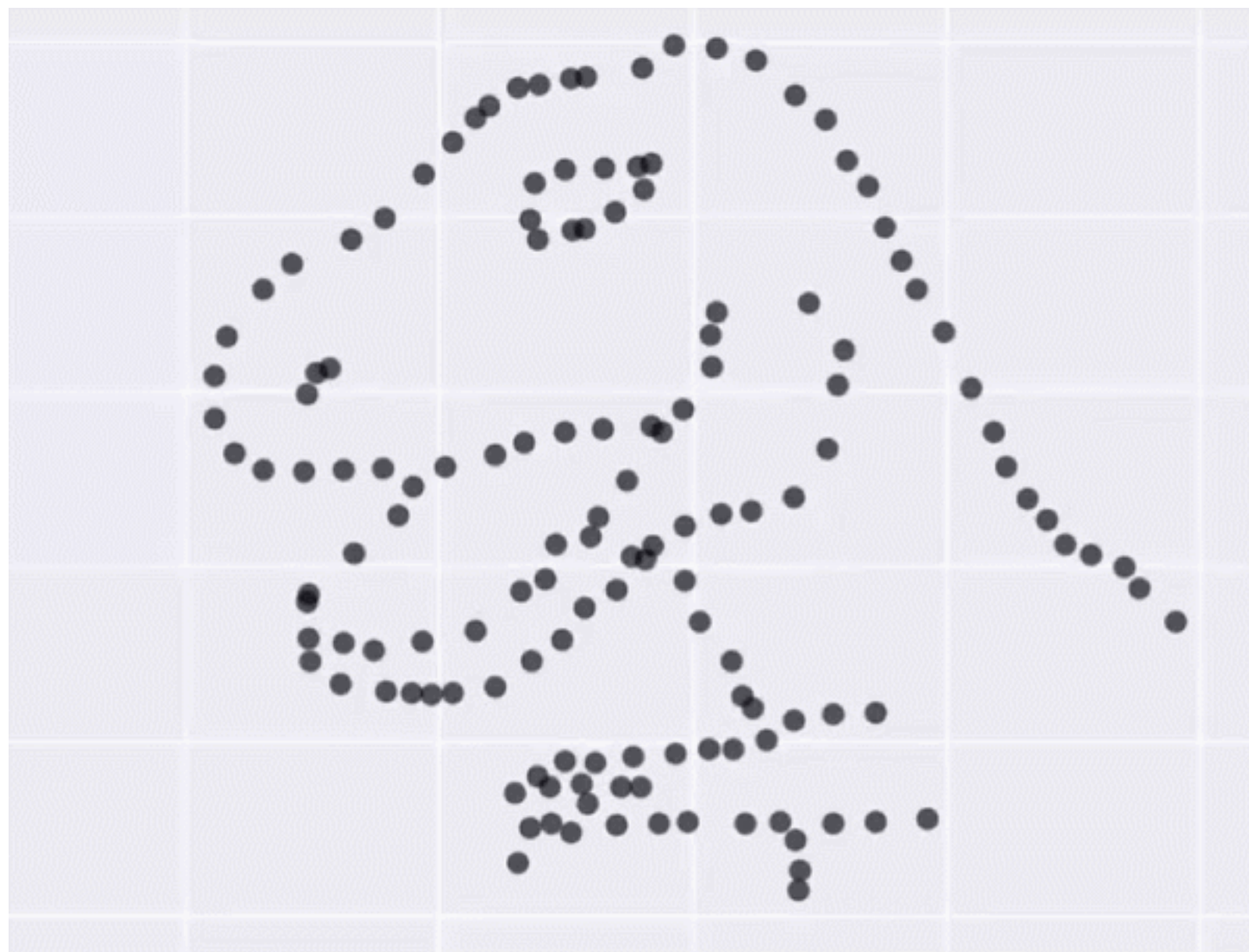
I		II		III		IV	
x	y	x	y	x	y	x	y
10	8.04	10	9.14	10	7.46	8	6.58
8	6.95	8	8.14	8	6.77	8	5.76
13	7.58	13	8.74	13	12.74	8	7.71
9	8.81	9	8.77	9	7.11	8	8.84
11	8.33	11	9.26	11	7.81	8	8.47
14	9.96	14	8.1	14	8.84	8	7.04
6	7.24	6	6.13	6	6.08	8	5.25
4	4.26	4	3.1	4	5.39	19	12.5
12	10.84	12	9.13	12	8.15	8	5.56
7	4.82	7	7.26	7	6.42	8	7.91
5	5.68	5	4.74	5	5.73	8	6.89

4 data tables

Mean of x	9
Variance of x	11
Mean of y	7.5
Variance of y	4.125
Correlation x and y	0.816
Linear Regression line	$y = 3 + 0.5x$
Coefficient of determination of the LR	0.67

sharing the
same summary
statistics





Why?

sort of ↓



Visual powers

66% of stimuli reaching the brain are visual (Zaltman 1996)

50% of brain is devoted to processing visual images (Bates & Cleese 2001)

80% of learning is visually based (Am. Optometric Assoc., 1991)

The secret

Preattentive processing

Preattentive processing

Processing of sensory information that stands out **before** the conscious mind starts to pay attention to any specific objects.

8 6 8 8 8 8 6 0 9 4 6 2 8 3 4 7 1 9 7 1 4 4 4 9 6 4 8

1 2 2 2 8 6 6 5 1 9 7 8 7 9 4 2 2 2 4 8 4 7 7 9 9 0 8

9 3 9 3 4 0 2 4 3 1 2 3 0 0 7 3 9 2 1 8 3 3 9 0 1 1 6

3 5 1 6 8 4 1 2 4 9 6 2 3 3 4 3 3 9 7 0 9 7 4 9 7 4 2

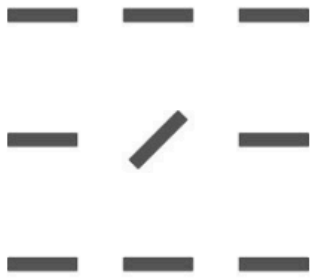
8 6 8 8 8 8 6 0 9 4 6 2 8 3 4 7 1 9 7 1 4 4 4 9 6 4 8

1 2 2 2 8 6 6 5 1 9 7 8 7 9 4 2 2 2 4 8 4 7 7 9 9 0 8

9 3 9 3 4 0 2 4 3 1 2 3 0 0 7 3 9 2 1 8 3 3 9 0 1 1 6

3 5 1 6 8 4 1 2 4 9 6 2 3 3 4 3 3 9 7 0 9 7 4 9 7 4 2

Some **preattentively** processed visual attributes



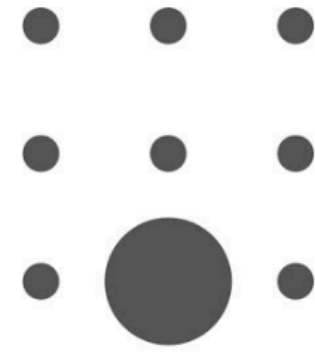
Orientation



Length



Width



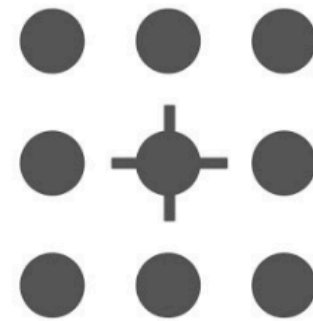
Size



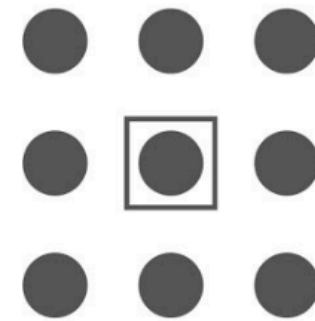
Shape



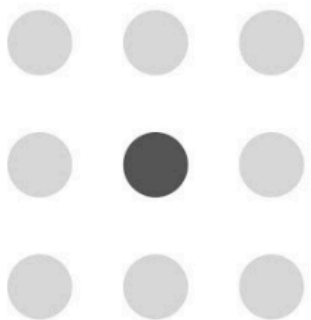
Curvature



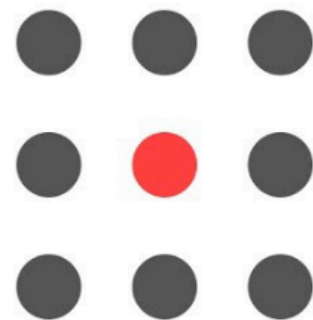
Added Marks



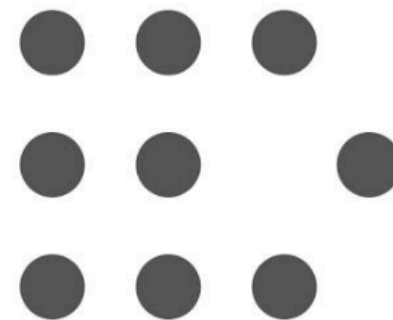
Enclosure



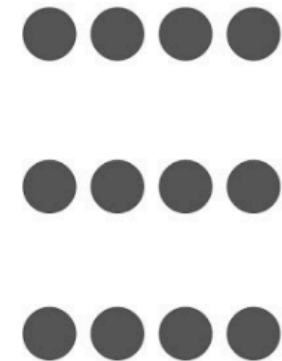
Contrast



Colour



Position



Spatial Grouping

Why do we visualise?

Our visual system is **fast**

Our visual system is good at **pattern recognition**

Our visual system is good at providing an **overview**

Our visual system allows us to **memorise** information as images