

The Elementary Perceptual Tasks (Part 1)

Lecture 5

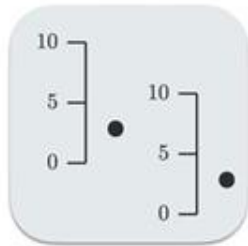
#1

The 10 elementary perceptual tasks

The 10 elementary perceptual tasks



Position in common scale



Position in non aligned scales



Length



Direction



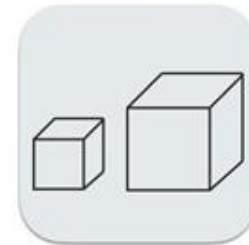
Angle



Area



Curvature



Volume

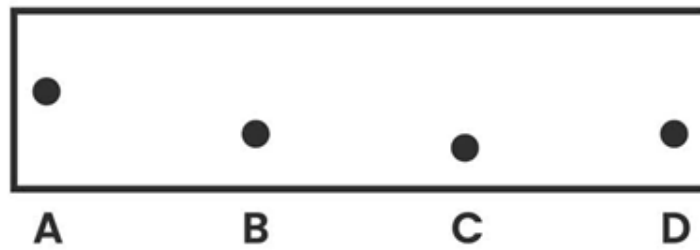


Shading



Color saturation

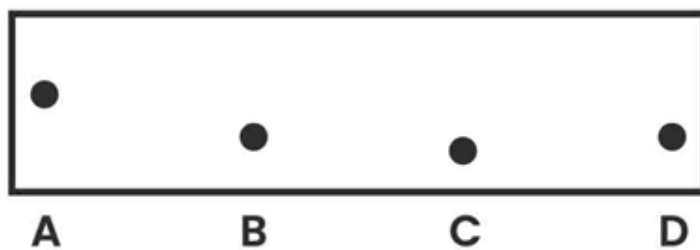
Position in a common scale



Position in a common scale



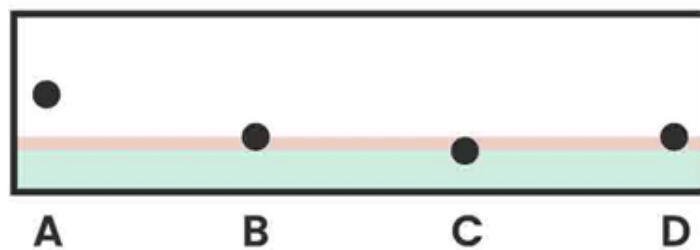
Task example:
Order the dots in increasing height order



Position in a common scale



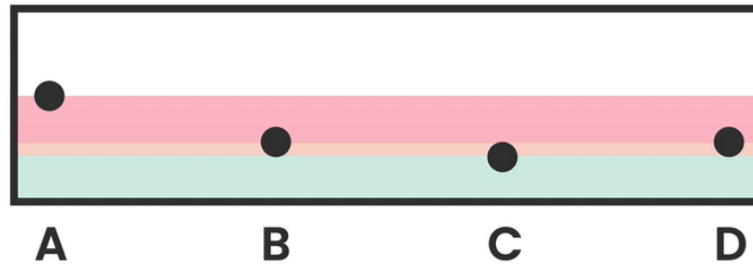
Task example:
Order the dots in increasing height order



Position in a common scale



Task example:
Order the dots in increasing height order



Solution:
 $C < (B = D) < A$

Position in a common scale

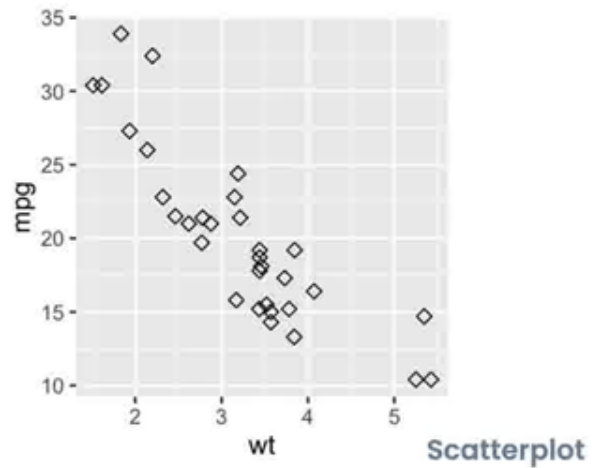


A type of graph in which we have to decode
position in a common scale

Position in a common scale



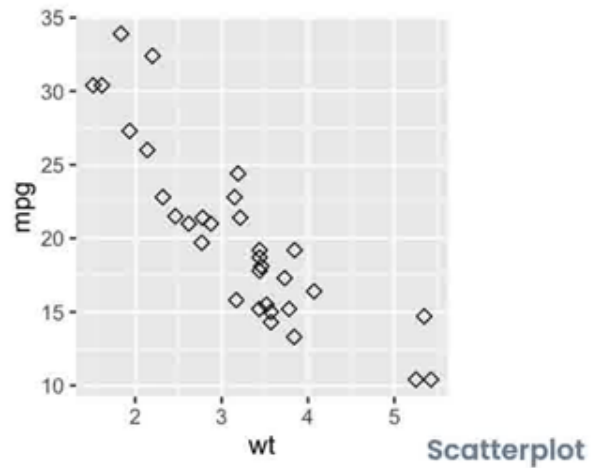
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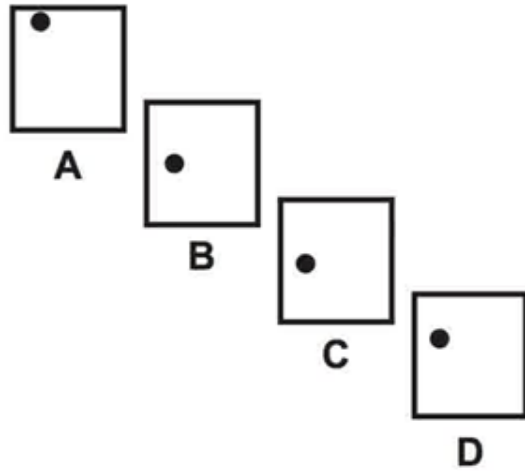
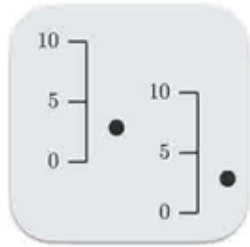
Position in a common scale



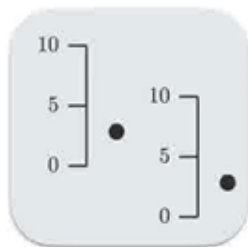
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position in a common scale



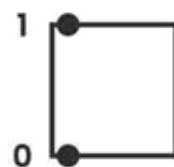
Position in non-aligned scales



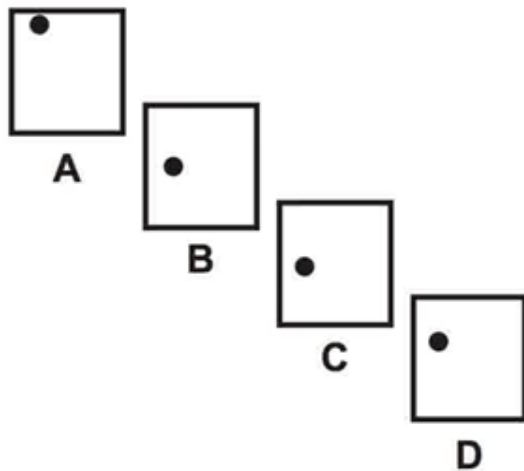
Position in non-aligned scales



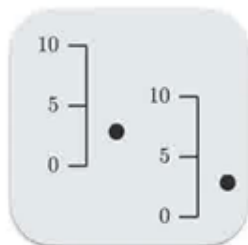
Task example:
If the bottom of the box is 0 and the
top of the box is 1...



... can you order the following values from higher to lower?



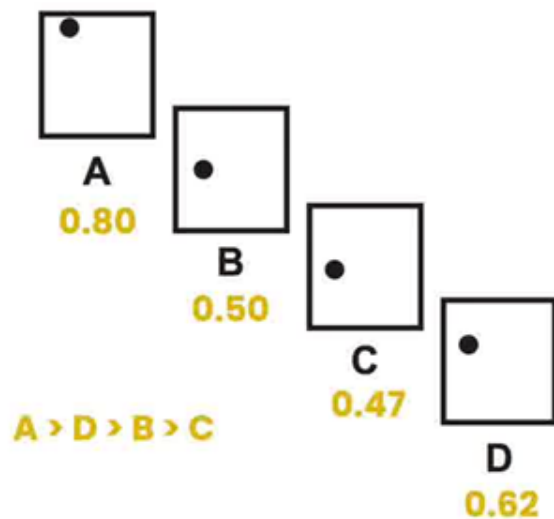
Position in non-aligned scales



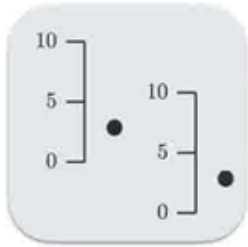
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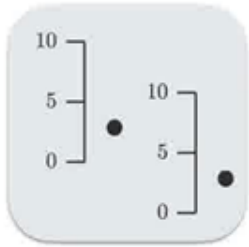


Position in non-aligned scales



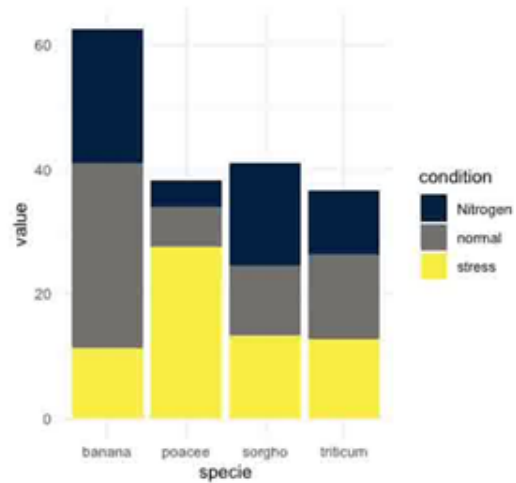
A type of graph in which we have to decode
position in non-aligned scales

Position in non-aligned scales

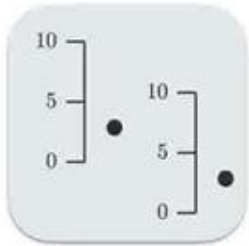


A type of graph in which we have to decode
position in non-aligned scales

Stacked bar chart

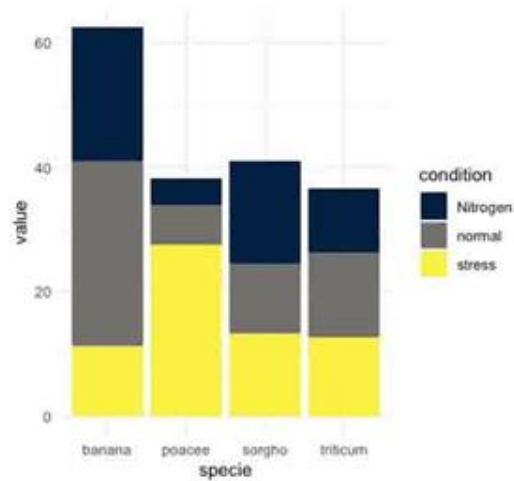


Position in non-aligned scales

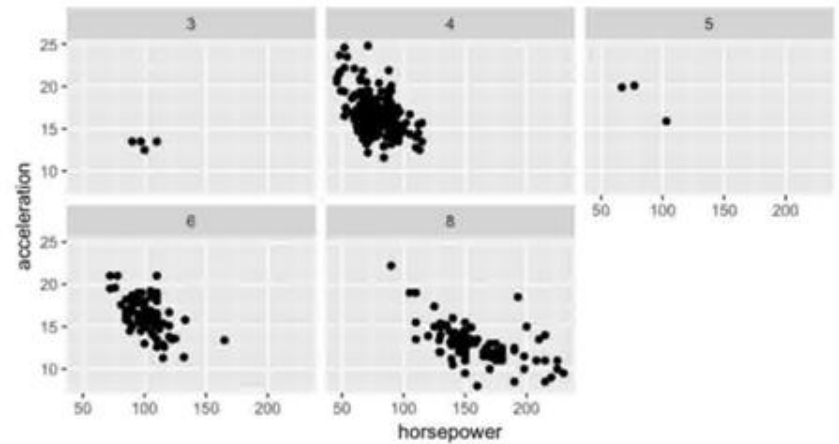


A type of graph in which we have to decode
position in non-aligned scales

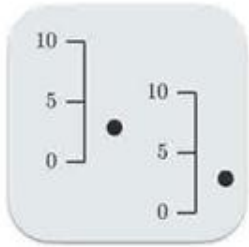
Stacked bar chart



Small multiples

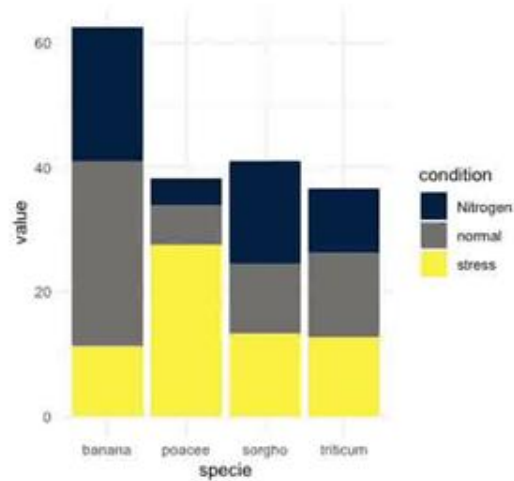


Position in non-aligned scales

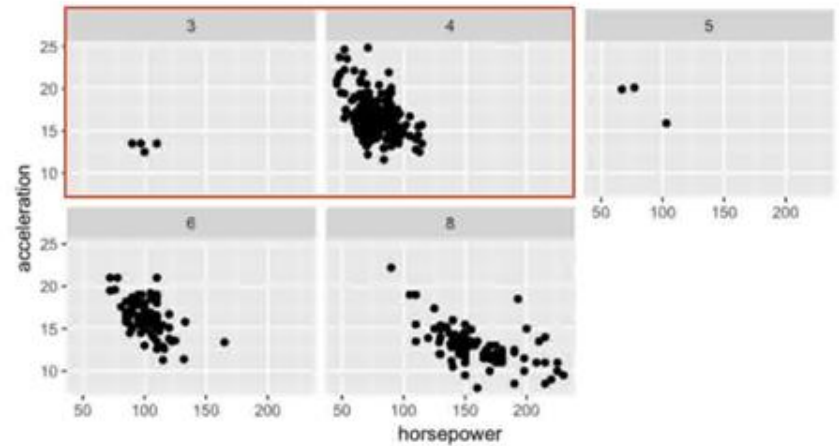


A type of graph in which we have to decode
position in non-aligned scales

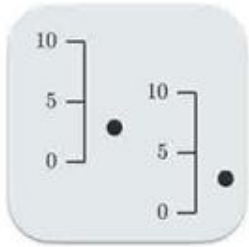
Stacked bar chart



Small multiples

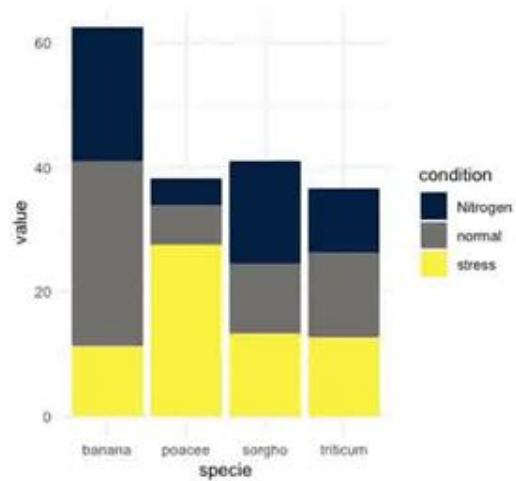


Position in non-aligned scales

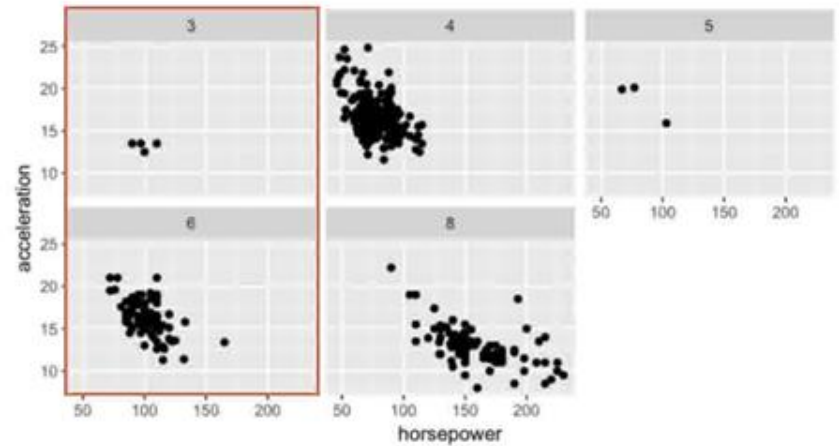


A type of graph in which we have to decode
position in non-aligned scales

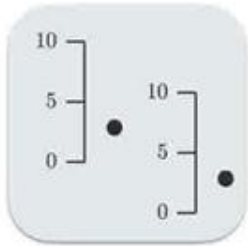
Stacked bar chart



Small multiples

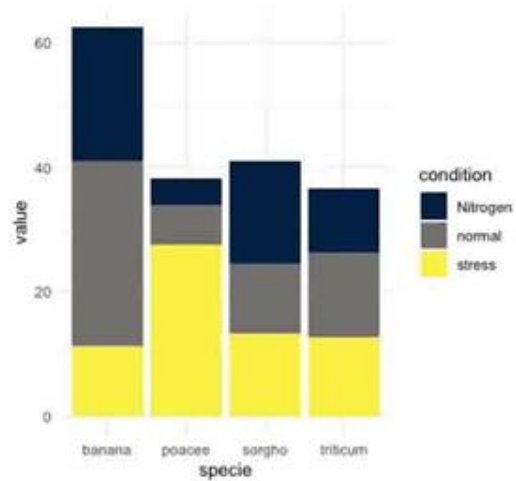


Position in non-aligned scales

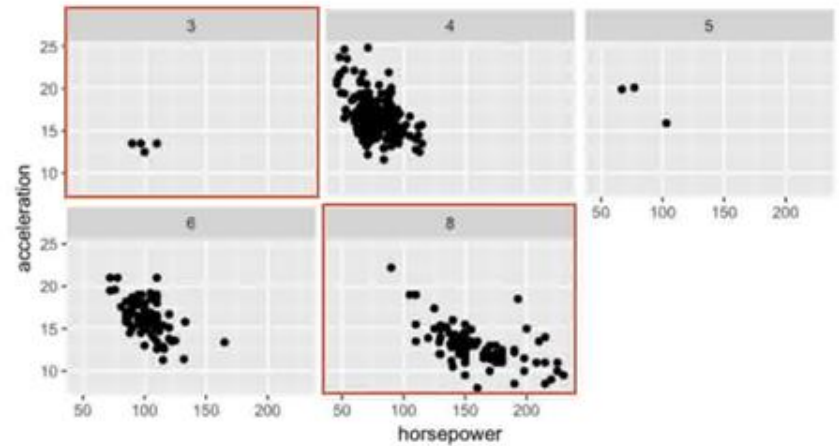


A type of graph in which we have to decode
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Stacked bar chart



Small multiples



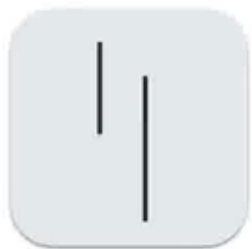
Length



Task example:
what is the length of each line if the
medium one is 1?



Length



Task example:
what is the length of each line if the
medium one is 1?



Length



Task example:
what is the length of each line if the
medium one is 1?



Same scale,
vertical

Length



Task example:
what is the length of each line if the
medium one is 1?



Same scale,
vertical



Non aligned scales,
vertical



Non aligned scales,
horizontal

Length



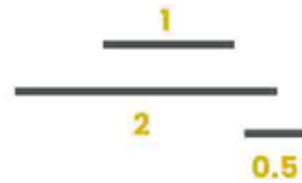
Task example:
what is the length of each line if the
medium one is 1?



Same scale,
vertical



Non aligned scales,
vertical



Non aligned scales,
horizontal

Length



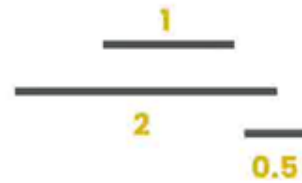
Task example:
what is the length of each line if the
medium one is 1?



Same scale,
vertical



Non aligned scales,
vertical



Non aligned scales,
horizontal



Length



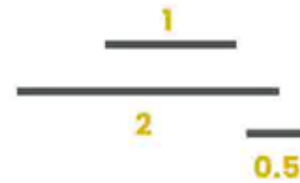
Task example:
what is the length of each line if the
medium one is 1?



Same scale,
vertical



Non aligned scales,
vertical



Non aligned scales,
horizontal

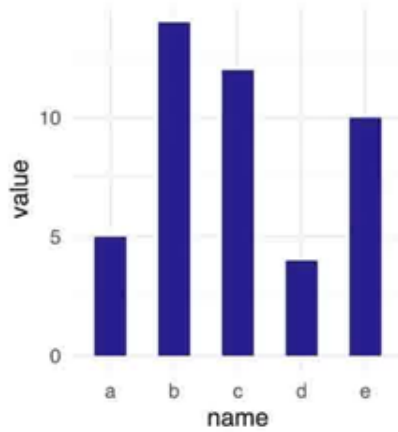


Length



A type of graph in which we have to decode
length

Bar plot

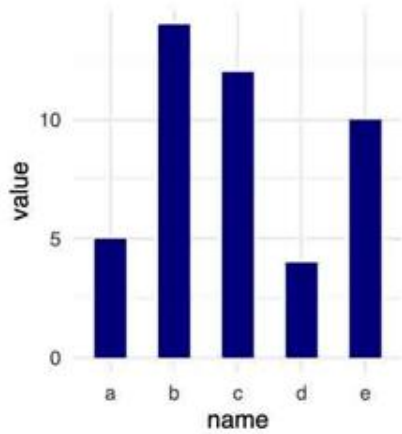


Length

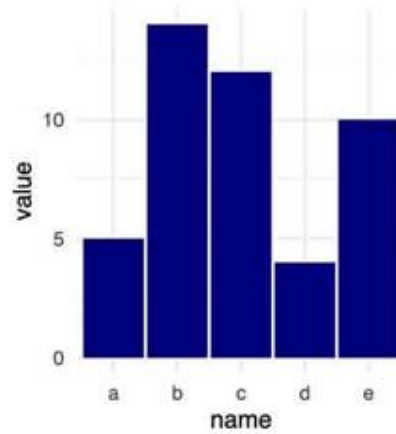


A type of graph in which we have to decode
length

Bar plot



A not so good bar plot

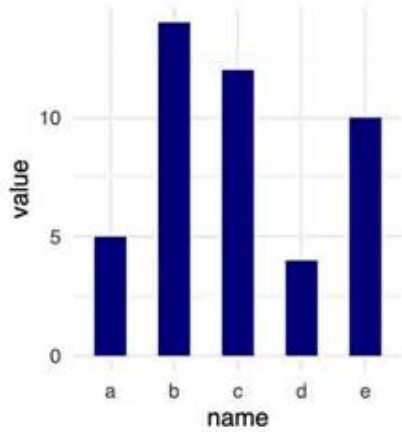


Length

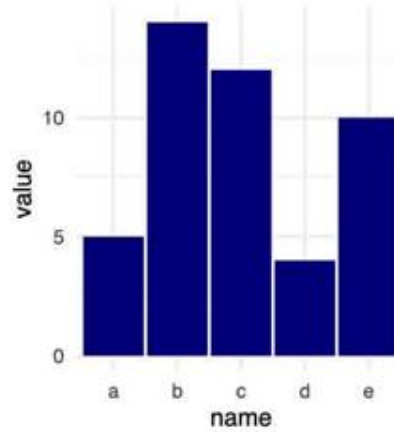


A type of graph in which we have to decode
length

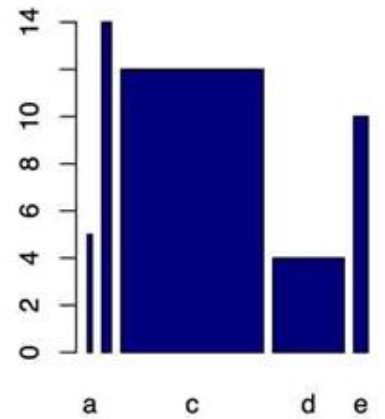
Bar plot



A not so good bar plot



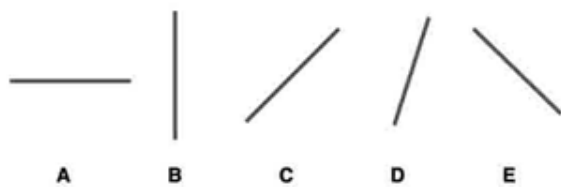
A very bad bar plot



Direction



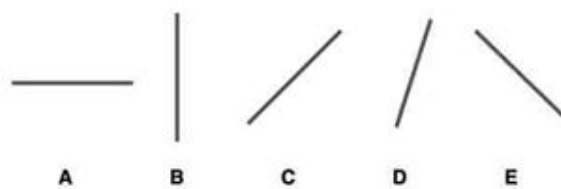
Task example:
Order lines by direction



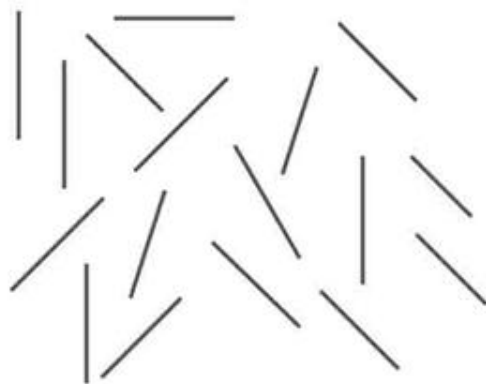
Direction



Task example:
Order lines by direction



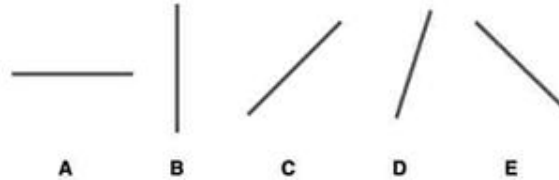
Task example 2:
Is it easy to see how many lines have
the same direction?



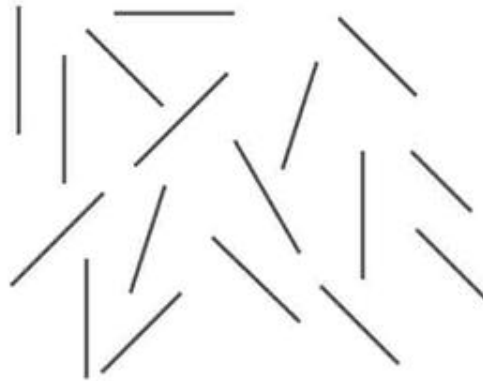
Direction



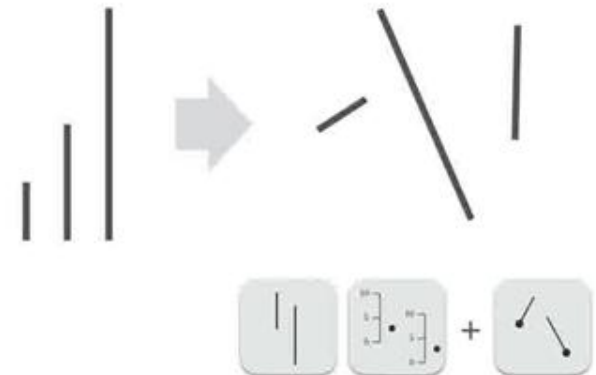
Task example:
Order lines by direction



Task example 2:
Is it easy to see how many lines have
the same direction?



Task example 3:
What about guessing the length of the
previous lines but changing direction?
Can you now easily guess the length?

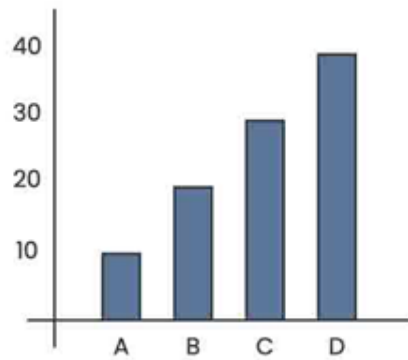


A quick note

Experiment	Result
A	10
B	20
C	30
D	40

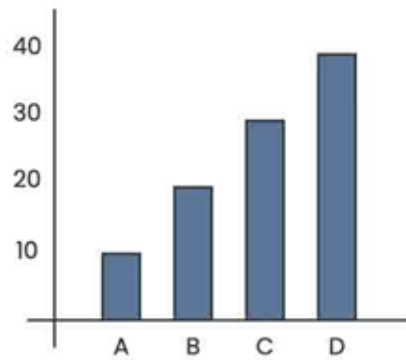
A quick note

Experiment	Result
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B	20
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A quick note

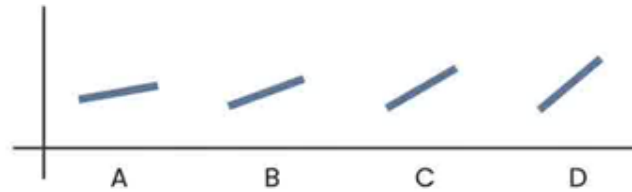
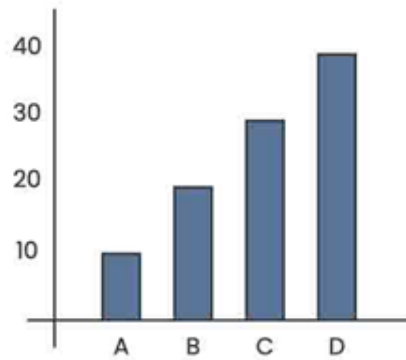
Experiment	Result
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C	30
D	40



Primary task: decoding length

A quick note

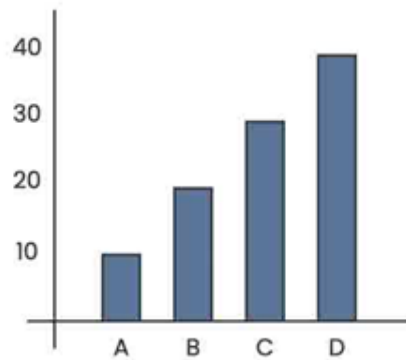
Experiment	Result
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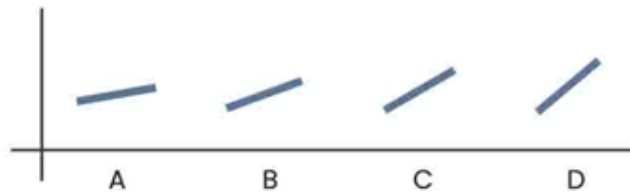
Primary task: decoding length

A quick note

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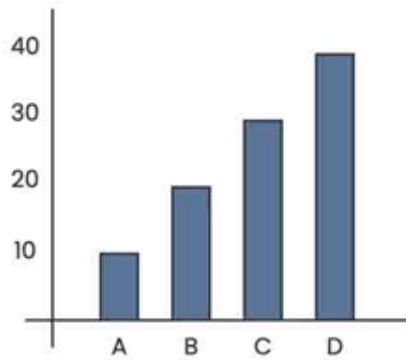
Primary task: decoding length



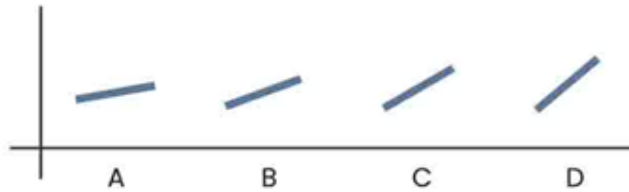
Primary task: decoding direction

A quick note

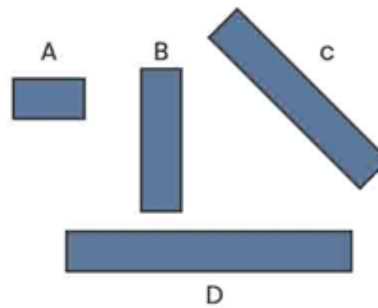
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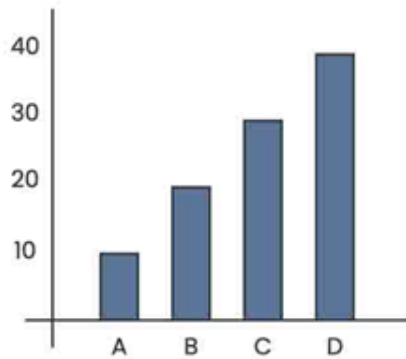


Primary task: decoding direction

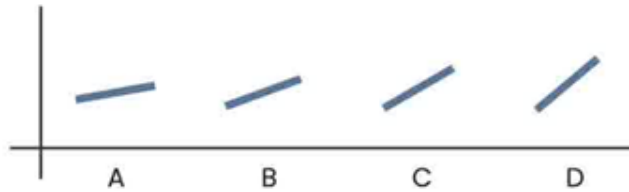


A quick note

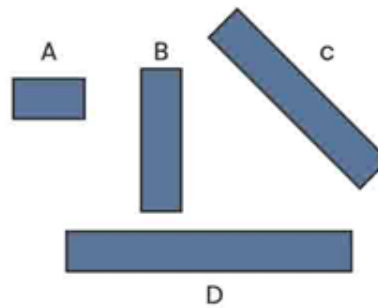
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Primary task: decoding length



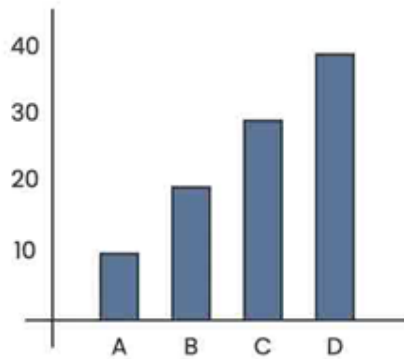
Primary task: decoding direction



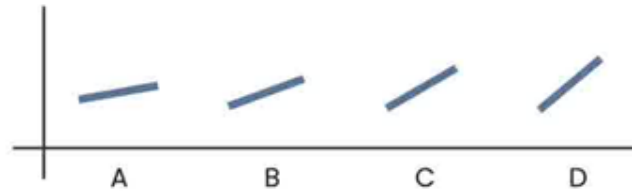
Primary task: decoding length

A quick note

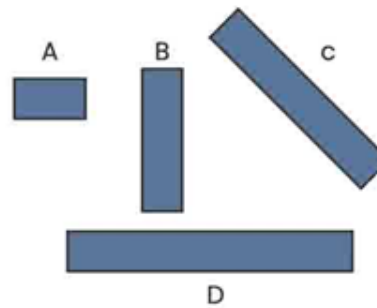
Experiment	Result
A	10
B	20
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Primary task: decoding length



Primary task: decoding direction

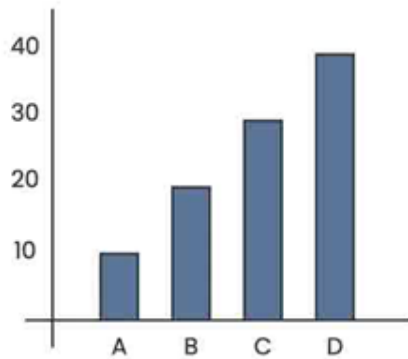


Primary task: decoding length

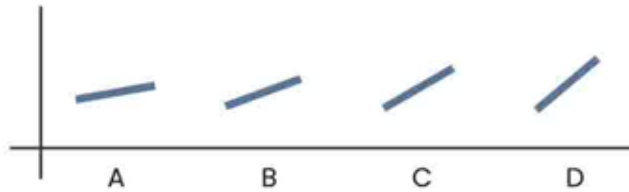
Secondary task: decoding direction

A quick note

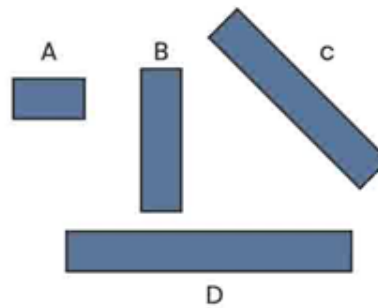
Experiment	Result
A	10
B	20
C	30
D	40



Primary task: decoding length



Primary task: decoding direction



Primary task: decoding length

Secondary task: decoding direction

Direction



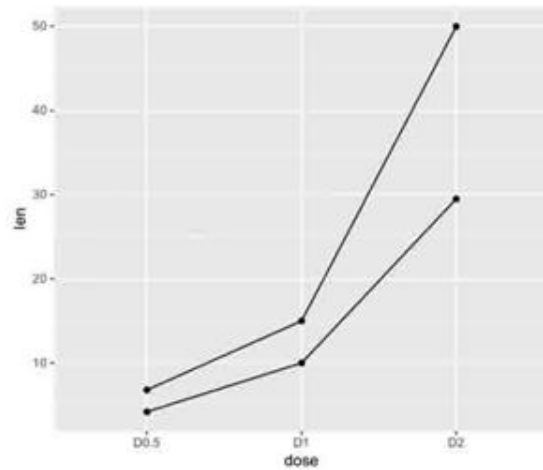
A type of graph in which we have to decode
direction

Direction



A type of graph in which we have to decode **direction**

Connected scatterplot

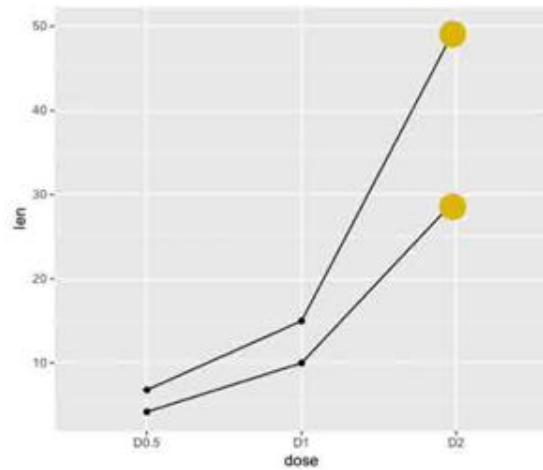


Direction



A type of graph in which we have to decode **direction**

Connected scatterplot

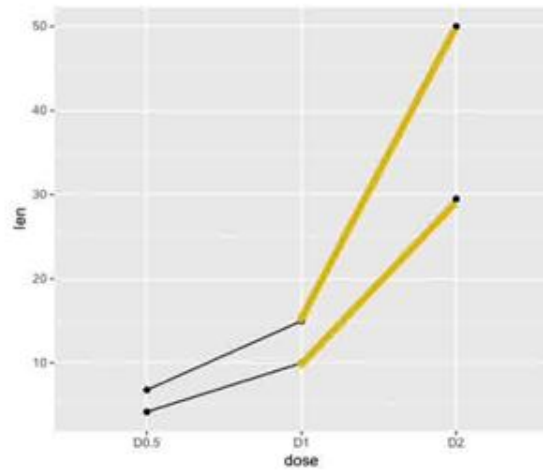


Direction



A type of graph in which we have to decode **direction**

Connected scatterplot

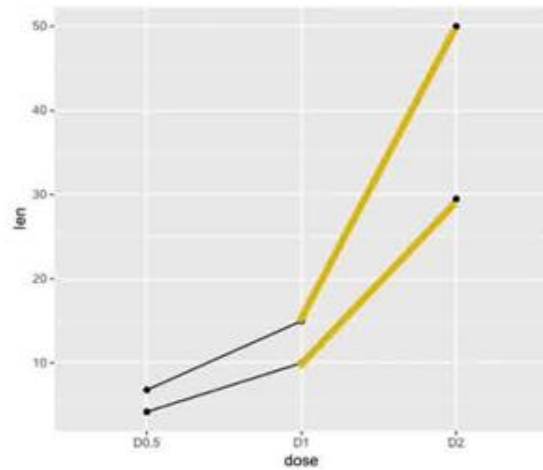


Direction

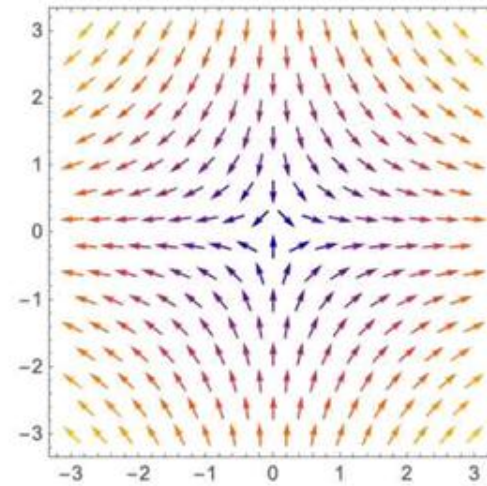


A type of graph in which we have to decode
direction

Connected scatterplot



Vector field plot



Angle



Task example:
Can you guess the value of these
angles?



Angle



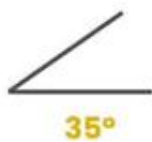
Task example:
Can you guess the value of these
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Angle



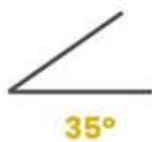
Task example:
Can you guess the value of these
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Angle



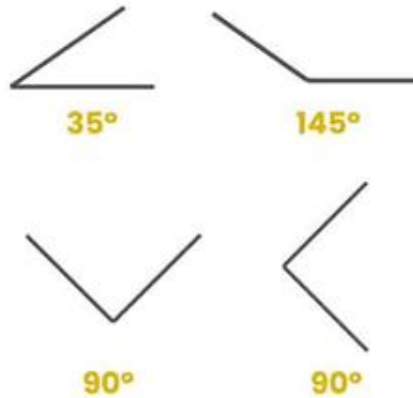
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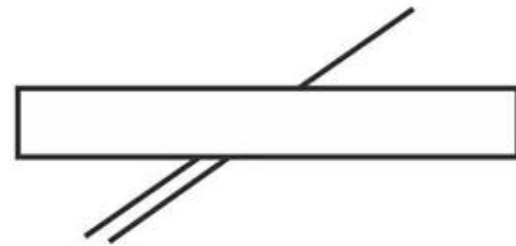
Angle



Task example:
Can you guess the value of these
angles?



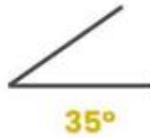
The Poggendorf illusion:
Which of the bottom lines matches the top one?



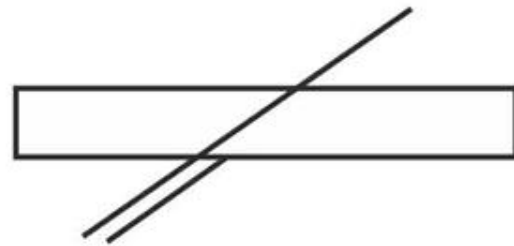
Angle



Task example:
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angles?



The Poggendorf illusion:
Which of the bottom lines matches the top one?



Angle



A type of graph in which we have to decode
angles

Angle



A type of graph in which we have to decode **angles**

Pie chart



Doughnut chart



Angle



A type of graph in which we have to decode
angles

Pie chart



Doughnut chart



Sunburst chart



Easy?