

Exercise walk-through

Perception ■ 2.1

eXercise

You must be able to

- distinguish **bottom-up** 自下而上 from **top-down** 自上而下 processing
- explain how **attention** 注意 selects among available inputs
- describe how **Gestalt** 格式塔 principles organise a scene
- state what a **perceptual constancy** 知觉恒常性 and a **depth cue** 深度线索 do

Method — Two directions of processing

Bottom-up processing builds a percept from the incoming sensory data. **Top-down** processing uses expectation, context and prior knowledge to interpret it. Ordinary perception uses both at once.

Method — Attention selects

We cannot process everything reaching the senses. Selective attention makes some inputs available for full processing; **inattention blindness** shows that an unattended event can go entirely unnoticed even when it is in plain view.

Method — Gestalt organisation

The visual system groups elements automatically: **figure and ground**, **proximity**, **similarity**, **closure**. The organisation is imposed by the perceiver, not read off the image.

Method — Constancy and depth

Perceptual constancy keeps an object's size, shape or colour stable despite changes in the retinal image. **Binocular** cues (retinal disparity) and **monocular** cues (relative size, interposition, linear perspective) recover depth from a flat image.

Practice 2.1 ■ 2 marks

State the difference between bottom-up and top-down processing.

Solution 2.1

Method: Two directions of processing

Worked steps

bottom-up builds a percept from incoming sensory data **B1**; top-down interprets it using expectation, context and prior knowledge **B1**.

Practice 2.2 ■ 2 marks

Explain what inattentional blindness demonstrates about perception.

Solution 2.2

Method: Attention selects

Worked steps

attention is required for conscious perception **B1**; an unattended event can be fully visible and still go unnoticed **B1**.

Practice 2.3 ■ 1 mark

A door appears rectangular even when seen at an angle.

- (a) Name the phenomenon.
- (b) State what the retinal image actually shows.

Solution 2.3

Worked steps

(a) shape constancy **B1**. (b) a trapezoid, not a rectangle **B1**.

Exam-style 3.1 ■ 1 mark

Reading a smudged word correctly because of the sentence around it is mainly

A bottom-up processing

B top-down processing

C sensory adaptation

D transduction

Solution 3.1

A bottom-up processing

B top-down processing



C sensory adaptation

D transduction

Worked steps

B. context and expectation supply the interpretation the data alone does not.

Exam-style 3.2 ■ 1 mark

Judging that a car is far away because it looks small relies on a

- A** binocular cue
- B** monocular cue
- C** Gestalt closure principle
- D** perceptual constancy

Solution 3.2

- A binocular cue
- B monocular cue**
- C Gestalt closure principle
- D perceptual constancy



Worked steps

- B. relative size is available to one eye, so it is a monocular cue.

Exam-style 3.3 ■ 1 mark

Viewers counting passes in a video fail to notice an obvious unexpected event.

- (a) Name the effect.
- (b) Explain what it shows about the role of attention.

Solution 3.3

Method: Attention selects

Worked steps

(a) inattention blindness **B1**. (b) perception is selective, not a complete recording **B1**, so what is unattended may never reach awareness at all **B1**.