

Exercise walk-through

2.2

Thinking, Problem-Solving, Judgments, and Decision-Making

AP Psychology

A systematic search or a shortcut?

A classroom puzzle has eight possible answers

Exactly one of the answers A–H is correct, and a checker identifies a correct answer when tested. Lin tests A, then B, and continues in order until the checker accepts one. Kai starts with D because similar puzzles often used D.

Which method systematically covers the possibilities? Which relies on a shortcut?

What assumptions make the systematic method certain to find the answer?

Why the search works in this example

Lin uses an **algorithm** : a systematic procedure. In this finite puzzle, testing every answer covers all eight possibilities, and the checker recognises the correct answer.

Kai uses a **heuristic** : prior experience suggests a starting point. It may save time if D is correct, but it may mislead when this puzzle differs.

Lin's guarantee depends on the stated conditions: the answer is in A–H, the checker works, and the search can finish. An algorithm does not always require exhaustive search, and it is not always slower than a shortcut.

The CED's search example contrasts systematic coverage with a mental shortcut. State why the method fits this problem.

Concepts, schemas, and the two kinds of thinking

concepts

the basis of thought – mental categories

prototype

the **best example** of a concept; a robin is a better prototype for 'bird' than a penguin

assimilation

fitting new information *into* an existing schema

accommodation

changing the schema because the new information will not fit

executive functions

generating, organising, planning and carrying out goals

divergent convergent

vs

generating many possible answers, against narrowing to the single correct one – **creativity** needs the first

Assimilation keeps the schema and bends the fact; accommodation keeps the fact and bends the schema. Say which happened.

Thinking and Problem-Solving, continued

Thinking can also get stuck. A **mental set** is the tendency to repeat a solution that worked before. **Functional fixedness** is seeing an object only in its usual use.

The **gambler's fallacy** (believing a run must end) and the **sunk-cost fallacy** (continuing because of what is already spent) both hinder good decisions.

What information drives the judgement?

Two judgements to explain

A: After seeing vivid reports of bicycle crashes, a learner judges cycling accidents to be very common because those stories come to mind easily.

B: A learner assumes a quiet person who likes books must be a librarian because that person matches an image of a librarian, while ignoring how common different occupations are.

Which judgement relies on ease of recall, and which relies on resemblance to a typical example? Explain the possible error in each.

Exercises 2.1-2.2

2.1 State one advantage of an algorithm and one of a heuristic. [2]

2.2 Explain the availability heuristic and give one consequence. [2]

Exercises 2.1-2.2

2.1 State one advantage of an algorithm and one of a heuristic. [2]

2.1

- algorithm: guaranteed to find the answer if one exists; heuristic: fast and usually good enough
-

2.2 Explain the availability heuristic and give one consequence. [2]

2.2

- judging likelihood by how easily an example comes to mind; so vivid or heavily reported events are systematically overestimated

Exercise 2.3 (a)

2.3 A patient is told a treatment has “a 90% survival rate” rather than “a 10% death rate.”

(a) Name the effect being used.

[1]

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(a)

- framing

Exercise 2.3 (b)

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(b) State what it shows about how decisions are made.

[1]

Exercise 2.3 (b)

2.3 A patient is told a treatment has “a 90% survival rate” rather than “a 10% death rate.”

(b) State what it shows about how decisions are made. [1]

(b)

- decisions depend on how information is described, not only on the information itself

Exercises 3.1-3.2

3.1 Overestimating the risk of plane crashes after seeing news coverage illustrates [1]

☐

A the representativeness heuristic

B the availability heuristic

C functional fixedness

D a mental set

3.2 Failing to use a coin as a screwdriver is an example of [1]

☐

A confirmation bias

B framing

C functional fixedness

D an algorithm

Exercises 3.1-3.2

3.1 Overestimating the risk of plane crashes after seeing news coverage illustrates [1]

- ☐ **A** the representativeness heuristic
B the availability heuristic
C functional fixedness
D a mental set

3.1 B

- coverage makes examples easy to recall, inflating the estimate

3.2 Failing to use a coin as a screwdriver is an example of [1]

- ☐ **A** confirmation bias
B framing
C functional fixedness
D an algorithm

3.2 C

- the coin's usual function blocks the new use

Exercise 3.3 (a)

3.3 A researcher only cites studies agreeing with her hypothesis.

(a) Name the bias.

[1]

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(a)

- confirmation bias

Exercise 3.3 (b)

3.3 A researcher only cites studies agreeing with her hypothesis.

(b) Explain why it is hard to detect in oneself.

[2]

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[2]

(b)

- the search feels like ordinary evidence-gathering, and disconfirming material is never encountered, so nothing signals that anything was missed