

Academic Reading Paper 03

Containers, Birdsong and Forecasts

Time allowed: 1 hour

INSTRUCTIONS TO CANDIDATES

- Do not open this booklet until you are told to do so.
- Write your name and the date at the top of the answer sheet.
- Answer **all** the questions.
- Write your answers **on the answer sheet**, not in this booklet.
- You must transfer your answers within the hour. **No extra time is given for transferring answers in the Reading test.**
- Do not remove this booklet from the examination room.

INFORMATION FOR CANDIDATES

- There are 40 questions in this paper.
- Each question carries one mark.
- There are three passages, with 13, 13 and 14 questions.

These passages were written for this library. They are **not** reproduced from any published past paper. The format, timing and task types follow the published specification for the Academic Reading test so that sitting this on paper feels like the real thing.

You should spend about 20 minutes on Questions 1–13, which are based on Reading Passage 1 below.

The box that changed the world

On 26 April 1956 a converted oil tanker called the *Ideal-X* left Newark, New Jersey, carrying fifty-eight aluminium boxes bolted to a deck built over her tanks. She reached Houston six days later, the boxes were lifted onto waiting lorries, and nothing about the voyage struck anyone at the time as historic. The man who had paid for it, Malcolm McLean, had made his money in trucking and knew almost nothing about ships. What he knew was that a lorry driver could spend a whole day at a pier watching his load be carried aboard by hand.

That was the ordinary condition of sea freight, and it is worth stating plainly, because it has been forgotten. Cargo arrived at a port as sacks, crates, barrels and bales. Gangs of dockworkers wrestled each item into the hold and packed it like a puzzle, since a badly stowed ship rolls. A vessel might spend longer alongside than at sea. Loading cost about \$5.86 a tonne, and roughly half the cost of shipping goods across an ocean was incurred while the ship was tied up and going nowhere.

The box removed the puzzle. A container is stowed by a crane in a slot designed for it, and the ship's plan can be worked out before she arrives. Within a few years the same tonne cost about sixteen cents to load. Turnaround times that had been measured in weeks fell to a day or two, which meant that a shipping line could run more voyages a year with the same hull, and that a manufacturer could rely on a delivery date. A crane lifts a loaded box every two or three minutes and does not care what is inside it, and that indifference is the whole point: a port no longer needs to know its cargo, only the weight of each box and where it is going. The men who had known every kind of cargo by hand were replaced by a machine that knows none of it.

Nothing about this was inevitable, and for a decade it very nearly failed. McLean's boxes fitted McLean's ships and nobody else's. A rival line built its own to a different size; railways used a third. A container is only useful if it can move between a lorry, a train and any ship in the world without being unpacked, and that requires agreement rather than invention. The standard sizes now used everywhere — the twenty-foot and forty-foot boxes, with corner fittings a crane can grip anywhere in the world — were settled by international committee between 1968 and 1970, fourteen years after the *Ideal-X* sailed.

The costs of the change fell on people who had not asked for it. A container port needs deep water, cranes and acres of flat land for stacking, and the old finger piers of Manhattan and Brooklyn had none of those things. Trade moved across the harbour to Elizabeth, New Jersey, and in Britain from London's docks to Felixstowe, a small east-coast port with room to expand. Dockworkers who had inherited their jobs from their fathers found the work gone. In New York and London the unions negotiated payments for men who would never be needed again; elsewhere they got nothing. Some old ports did survive by specialising in cargo that will not go into a box — timber, cars, grain — but most simply emptied.

What followed was less a change in shipping than a change in what could be made where. When moving a component across an ocean stops being expensive and starts being predictable, a factory no longer has to sit near its customers or near its parts. The container did not cause the movement of manufacturing to Asia, but it removed the obstacle that had made it unthinkable. Economists arguing about the causes of globalisation tend to reach for tariffs and treaties; the historian Marc Levinson's argument is that a steel box with a standard corner fitting did more than either.

There is one more thing the box changed, and it is the reason so few people noticed any of this. Freight used to be visible. It moved through the middle of cities, it employed men who lived beside the water, and everybody knew what the docks were. Now it passes through a fenced yard forty kilometres away, handled by cranes with one operator each, and arrives as a shelf that is never empty.

Questions 1–7

Do the following statements agree with the information given in Reading Passage 1?

Write **TRUE** if the statement agrees with the information, **FALSE** if the statement contradicts the information, or **NOT GIVEN** if there is no information on this.

- 1 The Ideal-X was not originally built to carry containers.
- 2 After containers were introduced, the cost of loading a tonne of cargo fell by about \$5.86.
- 3 McLean's company was the first to carry containers across the Atlantic.
- 4 The standard container sizes had been agreed before the Ideal-X sailed.
- 5 Every port that could not build container facilities closed.
- 6 Dockworkers in every major port received compensation for the loss of their jobs.
- 7 Levinson believes the container mattered more to globalisation than trade agreements did.

Questions 8–13

Complete the notes below.

Choose **NO MORE THAN TWO WORDS AND/OR A NUMBER** from the passage for each answer.

Before and after the container

Loading a ship before 1956

- Cargo arrived as sacks, crates, barrels and bales.
- Dockworkers packed each item by hand, because a ship that is badly stowed **8**
- About half the cost of an ocean crossing was spent while the ship was **9**

After the container

- Cost of loading a tonne fell to about **10** cents.

- A ship's stowage plan could be prepared before she **11**

Where the ports went

- A container port needs deep water, cranes and flat land for **12**
- In Britain, trade moved from London's docks to **13**

You should spend about 20 minutes on Questions 14–26, which are based on Reading Passage 2 below.

How birds learn to sing

- A** A chaffinch raised alone, hearing no other chaffinch, still sings. What comes out is recognisably a chaffinch song in its length and its pitch, and recognisably wrong in everything else — a flat, unstructured version with none of the flourishes a wild bird produces. William Thorpe established this in Cambridge in the 1950s with birds reared in soundproof boxes, and the result set the question that has occupied the field ever since. Something about the song is inherited and something about it plainly is not.
- B** The account that emerged has three stages and is worth setting out, because it is not what most people assume. The bird is born with a rough inherited template: not the song, but a specification of what a song of its species sounds like, precise enough to make the bird attend to the right sounds and ignore the wrong ones. In its first weeks it listens and memorises a model, usually its father's or a neighbour's. Only later, sometimes months later, does it begin to sing — and what it does then is not imitation so much as search. It produces a rambling subsong, listens to itself, and gradually files the output down until it matches the model it stored. Practice, not hearing, is the slow part.
- C** The memorising is confined to a window. Peter Marler, working with white-crowned sparrows, played tape-recorded songs to young birds at different ages and then reared them in silence. Birds tutored between about ten and fifty days old reproduced the tutor song accurately when they eventually came to sing, months afterwards. Birds tutored before or after that window sang the isolate song, as though they had heard nothing at all. The window closes whether or not it has been used, which is a hard fact for anyone who wants learning to be simply a matter of exposure.
- D** The second stage was demonstrated by taking hearing away. Masakazu Konishi deafened young birds at different points. A bird deafened after it had memorised a model but before it had begun to practise never produced anything like that model; its song collapsed into noise. The stored memory was intact and useless, because the bird could no longer hear its own attempts to match it. Hearing, in other words, is needed twice, and for two entirely different jobs — once to take the model in, and once to check the copy against it.
- E** Wild populations sort themselves into dialects. In the coastal hills of California a white-crowned sparrow from one valley sings a version distinct enough that a trained ear places it within a kilometre or two, and the boundaries between dialects have held for decades, longer than the life of any bird that sings there. Females raised in one dialect respond more strongly to males singing it, which is one mechanism by which a boundary might hold; whether that is enough to explain the pattern is still argued over. What starts a dialect is a separate question, and it has no settled answer. The plausible account is drift: a young bird copies a small error, its neighbours copy the copy, and with-

in a few generations one valley sounds unlike the next. That is a story rather than a demonstration, and the honest position is that the persistence of the boundaries is far better established than their origin.

F The brain does something that was thought impossible. Fernando Nottebohm found that the clusters of cells controlling song in canaries are not fixed structures: they grow in spring as the bird prepares to sing and shrink afterwards, and the growth involves new neurons produced in the adult brain. At the time the textbooks held that the adult vertebrate brain produces no new neurons at all. The finding was resisted for years and is now the foundation of an entire field, which is a useful reminder that a result from an unglamorous animal can overturn a doctrine that nobody thought to test.

G Birdsong became the standard model for how a young animal acquires a complex learned behaviour, and the parallels with human speech are real: a template, a sensitive period, a babbling stage, feedback from one's own output. The parallels are also limited, and it is worth saying where. A song is a fixed performance rather than a system for making new utterances; a bird does not combine songs to mean something it has not sung before. What the birds establish is not that language is birdsong, but that a behaviour can be both innate and learned without contradiction — which was the thing the argument needed. For most of a century those two words had been treated as alternatives, and a great deal of bad argument followed from the assumption that a behaviour had to be one or the other.

Questions 14–19

Reading Passage 2 has seven sections, A–G.

Choose the correct heading for sections A–C, E, F and G from the list of headings below.

Write the correct number, I–X.

List of Headings

- i** A song that is inherited but incomplete
- ii** A song that is learned but incomplete
- iii** The three stages, set out
- iv** The three species, compared
- v** A window that closes on time
- vi** A window that opens on demand
- vii** Local versions and how they persist
- viii** Local versions and how they began
- ix** A discovery that overturned a doctrine
- x** What the birds do and do not tell us about speech

14 Section A

- 15** Section B
- 16** Section C
- 17** Section E
- 18** Section F
- 19** Section G

Questions 20–23

Look at the following findings and the list of researchers below.

Match each finding with the correct researcher, A–C.

NB You may use any letter more than once.

List of Researchers
A William Thorpe
B Peter Marler
C Masakazu Konishi

- 20** A bird kept from hearing any member of its species still sings something.
- 21** A bird can only memorise a song during a fixed period of its life.
- 22** A bird needs to hear itself in order to reproduce a song it has already memorised.
- 23** A stored song can be of no use to the bird holding it.

Questions 24–26

Complete the summary using the list of words, A–H, below.

List of Words

- A template
- B imitation
- C search
- D exposure
- E practice
- F instinct
- G memory
- H performance

How the three stages fit together

A young bird is born already holding a rough **24** of its species' song, which makes it attend to the right sounds. When it finally begins to sing, months after storing a model, what it is doing is better described as **25** than as copying. The slow part of the whole process is not hearing the model but **26**

You should spend about 20 minutes on Questions 27–40, which are based on Reading Passage 3 below.

The trouble with experts

Between 1984 and 2004 the psychologist Philip Tetlock did something nobody had bothered to do. He asked several hundred people who were paid to comment on world affairs — academics, officials, journalists — to make specific, dated, falsifiable forecasts, and then he waited. Twenty years and some twenty-eight thousand predictions later he scored them. The experts performed slightly worse than a simple rule that assigned equal probability to every outcome, and Tetlock's own summary of the result, that the average expert was roughly as accurate as a dart-throwing chimpanzee, has done more travelling than anything else he wrote.

It travelled because it flatters a suspicion people already hold. That is a reason to handle it carefully, and Tetlock's own book is a good deal more careful than its most quoted line. The finding was not that expertise is worthless. It was that the experts' accuracy did not improve with their credentials, their access to classified material, or their years in the field — and that some of them were markedly better than others in a way that had nothing to do with how much they knew.

The difference lay in how they thought. Borrowing a distinction the philosopher Isaiah Berlin had drawn half a century earlier from a fragment of Greek verse, Tetlock sorted his forecasters into hedgehogs, who know one big thing and drive every question through it, and foxes, who know many small things and are content to leave a picture incomplete. The hedgehogs were the confident ones, the ones television producers book, and the less accurate. Foxes hedged, revised, and admitted ignorance, and scored better on almost every measure. The style of thought predicted accuracy; the quantity of knowledge did not.

The obvious conclusion, drawn enthusiastically by a great many people who never read past the chimpanzee, is that we should stop listening to experts. This does not follow, and it is worth seeing why not. Tetlock's questions were political and geopolitical — the sort of open system in which a single unpredictable actor can undo any amount of analysis. Nobody has shown that a cardiologist reading an angiogram, or an engineer calculating a load, performs at chance. What the study showed is that a particular kind of question defeats a particular style of confidence, and generalising from that to expertise as such is the same error as the hedgehogs': taking one big finding and driving every question through it.

There is also a positive result that the pessimistic reading has to ignore. Between 2011 and 2015 a forecasting tournament run for an American intelligence agency put teams of ordinary volunteers against methods available to the professionals. The best of the volunteers, whom Tetlock called superforecasters, beat the average by a wide margin and held their lead year after year, which rules out luck. They were not the most credentialed people in the tournament, and several had no relevant qualification at all. What they had in common was a set of habits: breaking a question into parts, starting from how often the thing happens in general before adjusting for the specifics of the case, updating in small increments when new evidence arrived rather than in dramatic reversals, and keeping score.

That last habit is the one that matters, and it is the one institutions resist. A forecast that is dated and specific can be marked. A forecast that is neither — the kind that fills newspaper columns and briefing notes — cannot be wrong, and it is worth asking why so much of the commentary a government or a bank pays for is written in exactly that form. It is not, mostly, dishonesty. Vagueness is what survives when being wrong in public is expensive and being useless is free. A bank that publishes a number can be shown next quarter to have been wrong about it. A bank that publishes a paragraph about headwinds and uncertainty cannot, and the paragraph costs no more to write.

Training helped, which is the most encouraging finding in the whole literature and the least reported. Volunteers given a short course in basic probabilistic reasoning — an hour of it, in some conditions — improved measurably and stayed improved. If forecasting skill were a gift, the tournament would have found a fixed elite. Instead it found a set of practices that could be taught to people who began with none of them.

None of which restores the pundit. It relocates the problem. The trouble was never that experts know too little; it is that we have built a market that rewards a style of speaking which cannot be scored, and then complained that the people speaking in it turn out to be unreliable. The remedy is not fewer experts. It is dated forecasts, kept records, and a willingness to say a number and be measured against it.

Questions 27–32

Do the following statements agree with the claims of the writer in Reading Passage 3?

Write **YES** if the statement agrees with the claims of the writer, **NO** if the statement contradicts the claims of the writer, or **NOT GIVEN** if it is impossible to say what the writer thinks about this.

- 27** The distinction between hedgehogs and foxes was first drawn by Tetlock.
- 28** The writer believes the study shows that expertise in general is worth little.
- 29** The experts in Tetlock's study were told how their forecasts had scored.
- 30** The writer accepts that the superforecasters' advantage cannot be put down to luck.
- 31** The writer believes public commentary would improve if commentators were paid differently.
- 32** The writer regards the effect of training as the most under-reported result in the field.

Questions 33–36

Complete each sentence with the correct ending, A–G, below.

Endings

- A predicted accuracy better than the amount a forecaster knew.
- B showed that skill in this field can be taught rather than only inherited.
- C survives because being wrong in public costs more than being useless.
- D repeats the error of the thinkers it criticises.
- E proved that political questions are as tractable as medical ones.
- F was retracted once the tournament results appeared.
- G depended on access to classified material.

- 33 A forecaster's style of thinking
- 34 Concluding from the study that experts should be ignored
- 35 The vagueness of professional commentary
- 36 The improvement produced by an hour of training

Questions 37–40

Choose the correct letter, A, B, C or D.

- 37 Tetlock's study of expert forecasting
 - A gathered about 28,000 predictions over roughly twenty years.
 - B gathered about 28,000 predictions from twenty experts.
 - C ran for twenty-eight thousand days.
 - D was completed in 1984.
- 38 According to the passage, what did NOT predict an expert's accuracy?
 - A How they thought about a problem.
 - B How long they had worked in the field.
 - C Whether they revised their views.
 - D Whether they admitted ignorance.
- 39 What does the writer say about the superforecasters?
 - A They were the best qualified people in the tournament.
 - B Their advantage lay in a set of habits rather than in credentials.
 - C They were given access to intelligence material.
 - D Their lead lasted for a single year.

- 40** Which of the following best describes the writer's conclusion?
- A** Expert commentary should carry less weight than public opinion.
 - B** Forecasting is a talent that cannot usefully be trained.
 - C** The problem is the form expert advice takes, not the existence of experts.
 - D** Political forecasting should be abandoned as impossible.