Try Exam

상위권 독해 100

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독해 1 · What We Know but Cannot Tell

The chemist and philosopher Michael Polanyi summarized a puzzling fact about human expertise in a single phrase: we know more than we can tell. A person can recognize a friend's face among thousands yet be unable to say which features made recognition possible. A skilled cyclist keeps her balance by making constant adjustments that she could not describe and would probably get wrong if she tried. Polanyi called this kind of understanding tacit knowledge, and he argued that it underlies even the most explicit sciences. A laboratory procedure written in perfect detail is often useless to a newcomer until someone who has performed it shows how it is actually done. This helps explain why apprenticeships have survived in fields as different as surgery, carpentry, and scientific research. It also explains a persistent difficulty in automation. Tasks that humans find effortless, such as folding laundry or understanding a joke, have proved far harder to program than tasks we find difficult, such as calculating tax. The reason is not that the easy tasks are simple, but that the rules guiding them were never made explicit, even to the people who follow them.

1 **Which of the following best explains why tasks such as folding laundry are hard to automate, according to the passage?**

① Such tasks require more calculation and precision than tasks like preparing taxes.
② Programmers cannot write down rules that the human performers themselves have never articulated.
③ Machines remain physically too clumsy to handle soft, irregular materials like cloth.
④ Skilled people are unwilling to share their practical knowledge with software engineers.

2 **The example of the written laboratory procedure is used to show that _____.**

① newcomers to science lack the basic intelligence needed to follow written instructions
② scientific instructions are usually written too poorly to be followed by beginners
③ even explicit fields depend on knowledge that is transmitted through demonstration
④ laboratories should replace written procedures entirely with apprenticeships in surgery and carpentry

3 **Which situation best illustrates tacit knowledge as described in the passage?**

① A student memorizes the steps of a math formula from a textbook and applies them on an exam.
② A tourist reads a detailed map to find a museum in an unfamiliar city.
③ A clerk follows a written checklist, step by step, to process a customer's order.
④ An experienced nurse senses a patient is worsening before any measurement changes but cannot say why.

독해 2 · Knowing It All Along

After an election, a war, or a financial crash, commentators often explain why the outcome was inevitable. The warning signs, they say, were obvious to anyone paying attention. Psychologists have shown that this confidence is largely an illusion created by knowing the result. In one classic study, people were asked to estimate the likelihood of various outcomes of a diplomatic trip before it happened, and then, afterward, to recall their original estimates. They consistently remembered having assigned higher probabilities to the events that had actually occurred. Once we learn an outcome, our memory of what we used to believe is quietly revised, and the alternatives that once seemed plausible fade from view. This hindsight bias has practical costs. Doctors reviewing a colleague's misdiagnosis may judge it careless because they already know the correct diagnosis, and juries may punish decisions that were reasonable given what was known at the time. Worse, if every past event looks predictable, we learn too little from our mistakes and come to overrate our ability to foresee the next surprise.

4 **Why might hindsight bias lead people to learn too little from mistakes?**

① Errors get blamed on carelessness rather than genuine uncertainty, so people never improve how they handle uncertainty.

② People forget their earlier mistakes entirely once they learn the outcome, so nothing at all remains to be examined.

③ Mistakes always look like the fault of other people, so individuals never question their own judgment.

④ Learning requires that outcomes be kept secret, which is impossible once events have been widely reported.

5 **Which practice would best reduce the effect of hindsight bias in reviewing a doctor's decision?**

① Having reviewers judge the case using only information available at the time, without revealing the outcome

② Letting the patient's family, who know how the case ended, decide whether the doctor was careless

③ Reviewing only cases with bad outcomes, since those are the ones most likely to reveal carelessness

④ Showing reviewers the final diagnosis first so that they can check each decision against the correct answer

6 **The study about the diplomatic trip demonstrates that _____.**

① diplomatic trips rarely succeed as well as experts had initially predicted

② people's memories of their own earlier predictions shift toward what actually happened

③ people refuse to estimate probabilities for events whose outcomes are uncertain

④ people are generally accurate at predicting the outcomes of diplomatic events

독해 3 · The Cost of Making a Deal

Why do firms exist at all? If markets allocate resources efficiently, one might expect every task to be bought and sold individually, with no need for large organizations that direct workers by command. In 1937 the economist Ronald Coase offered an answer that later earned him a Nobel Prize. Using the market is not free. One must find suitable partners, negotiate prices, write contracts, and monitor whether promises are kept, all of which consume time and money. When these transaction costs are high, it becomes cheaper to bring activities inside a firm, where a manager can simply assign tasks instead of bargaining over each one. But internal organization has costs of its own, such as bureaucracy and the difficulty of managing many activities at once. A firm therefore grows until the cost of organizing one more activity internally equals the cost of buying it on the market. The theory predicts that when technology lowers the cost of finding and contracting with outsiders, firms will rely more on outsourcing and freelancers, a shift that much of the recent economy seems to confirm.

7 **According to Coase's theory, what determines the size of a firm?**

① The point where organizing one more activity in-house costs as much as buying it outside
② The personal ambition of the manager to command ever larger numbers of workers
③ The number of workers available in the region where the firm is located
④ Government regulations that cap company size in order to protect market competition

8 **Which development would the theory predict to make firms smaller?**

① An online platform that makes it easy to find reliable contractors and enforce agreements with them
② An increase in the cost of searching for business partners and negotiating prices with them
③ A new law that makes contracts with outside suppliers harder and far costlier to enforce in court
④ A rise in the price of raw materials that firms must purchase from outside suppliers

9 **The author mentions bureaucracy in order to _____.**

① prove that transaction costs do not actually exist inside large firms
② argue that markets are always more efficient than firms
③ explain why firms do not simply grow without limit
④ show that managers are inefficient at assigning tasks by command

독해 4 · When Saving Hurts

For an individual household, saving more is almost always prudent: it builds a cushion against misfortune and provides for the future. Yet the economist John Maynard Keynes pointed out that what is wise for each household may be harmful for an economy as a whole. One person's spending is another person's income. If, during a recession, everyone simultaneously cuts spending to save more, businesses sell less, lay off workers, and reduce their own purchases. Incomes fall throughout the economy, and households may end up saving no more than before, or even less, because they now have less to save from. This is the paradox of thrift. It illustrates a broader error known as the fallacy of composition: assuming that what is true of each part must be true of the whole. A single spectator who stands up at a concert sees better, but if everyone stands, no one does. The paradox does not imply that saving is bad; it applies mainly when an economy has idle workers and factories, and it is one reason governments sometimes spend more precisely when private citizens are spending less.

10 The concert example is used to illustrate _____.

① that standing at concerts is rude because it blocks the view of everyone behind
② how saving money improves each household's view of the economy's future
③ why concerts are an inefficient form of entertainment for large audiences
④ how an advantage one person gains can vanish when everyone does the same

11 Under which condition is the paradox of thrift LEAST likely to apply?

① When businesses respond to falling sales by laying off workers and cutting purchases
② During a deep recession in which many households fear losing their jobs
③ When all households cut their spending at the same time to save more
④ When the economy runs at full capacity, with no idle workers or factories

12 Which of the following statements would the author most likely agree with?

① Saving always increases national income, even during a recession.
② Households should never save money, even in good times.
③ What is true of individuals is always true of the whole economy.
④ Government spending during a recession can offset reduced private spending.

독해 5 · Throwing Good Money After Bad

Economists teach that past costs that cannot be recovered should be ignored when making decisions. If you have paid for a concert ticket and wake up with a fever, the money is gone whether or not you go; the only question is whether attending will make you better off now. People frequently violate this rule, continuing failing projects because they have already invested so much in them. Governments complete useless bridges and companies keep funding doomed products, a pattern known as the sunk cost fallacy. Some researchers, however, argue that the behavior is not always irrational. A manager who abandons a project may signal to others that her earlier judgment was poor, damaging her reputation and future influence. A person who quits every difficult commitment as soon as it becomes costly may also find that others stop trusting her promises. In such cases, the past investment still matters, not because the money can be recovered, but because walking away carries new costs of its own. The lesson is subtle: sunk costs themselves should be ignored, but the consequences of ignoring them publicly may not be.

13 **According to the researchers mentioned in the passage, why might continuing a failing project sometimes be reasonable?**

① The money already spent can eventually be recovered if the project is completed.
② Failing projects usually succeed if they are given enough time and further funding.
③ Economists are wrong to claim that past costs can never be recovered in practice.
④ Abandoning it could create new costs, such as lost reputation or trust, that are not sunk.

14 **What is the meaning of the final sentence?**

① Sunk costs should always determine our decisions, because walking away wastes the original investment.
② Public decisions are always irrational, since people care more about reputation than about results.
③ People should hide their decisions from others so that no one can judge their earlier choices.
④ Money already spent should not matter, but the effects of visibly abandoning a commitment may.

15 **Which person is committing the sunk cost fallacy in its pure form?**

① A diner who finishes a meal he dislikes only because he paid for it, though no one would notice
② A student who drops a course early in the semester in order to receive a full tuition refund
③ A company that stops a project after learning that continuing it will only lose more money
④ A manager who continues a project because quitting would make her team lose trust in all of her future commitments

독해 6 · Behind the Veil

Imagine designing the basic rules of a society without knowing what position you will occupy in it. You do not know whether you will be rich or poor, healthy or disabled, talented or ordinary, or which religion you will hold. The philosopher John Rawls proposed this thought experiment, which he called the veil of ignorance, as a way to identify principles of justice that are fair to everyone. Because no one can design rules to favor themselves, the choices made behind the veil cannot be biased toward any particular group. Rawls argued that rational people in this situation would guarantee equal basic liberties and would permit economic inequalities only if they benefit the least advantaged members of society. Since you might turn out to be among the worst off, you would want that position to be as good as possible. Critics have questioned this reasoning. Some argue that people behind the veil might be willing to gamble, accepting a small risk of hardship for a large chance of prosperity, much as people do when they start businesses. The disagreement shows that even an impartial procedure must rely on assumptions about how people respond to risk.

16 What is the main purpose of the veil of ignorance?

① To show that people are naturally selfish whenever they design rules for others
② To prove that every form of economic inequality is unjust
③ To encourage people to take risks and start their own businesses
④ To prevent people from choosing principles that favor their own particular situation

17 The critics' objection depends on the idea that _____.

① the veil of ignorance is impossible to imagine, since everyone already knows their position
② Rawls misunderstood the meaning of liberty when he ranked it above economic growth
③ the poor do not deserve help if they took risks and failed in business
④ rational people might accept some risk of hardship for a good chance of a better outcome

18 Which policy would Rawls's principle most clearly support?

① Equal incomes for everyone, regardless of whether equality leaves the poorest citizens worse off than before
② A system that maximizes average income across the whole society, regardless of how that income is distributed among citizens
③ A tax system allowing high earnings for innovators only if growth raises the poorest citizens' living standards
④ Reducing basic liberties temporarily in order to increase economic growth that might benefit the poor

독해 7 · The Limits of the Trolley

A runaway trolley is heading toward five workers on the track. You can pull a lever to divert it onto a side track, where it will kill one person instead. Most people say they would pull the lever. But when the only way to stop the trolley is to push a large man off a bridge into its path, most people refuse, even though the arithmetic is identical. Philosophers have used such cases for decades to probe the difference between causing harm and allowing it, or between harming someone as a means and as a side effect. Critics object that the scenarios are so artificial that our responses tell us little about real moral life. In reality we are rarely certain that pushing someone would stop a vehicle, and we almost never face choices with only two options and perfectly known consequences. Defenders reply that the artificiality is the point. Just as physicists study objects in a vacuum to isolate gravity, philosophers strip away complications in order to isolate which features of an act make a moral difference.

19 **The defenders' analogy to physicists studying objects in a vacuum suggests that _____.**

① simplifying a situation can reveal which single factor accounts for a difference
② real-life moral decisions are always as simple as the trolley scenarios suggest
③ moral philosophy is really a branch of physics that studies human behavior
④ trolley problems should be tested in laboratories rather than discussed in classrooms

20 **Why is the comparison between the lever case and the bridge case philosophically interesting?**

① Because the lever case involves no harm at all, since the one person was never in danger
② Because more people die in the bridge case than in the lever case
③ Because people judge them differently although the same number of lives is saved and lost
④ Because both cases are identical in every respect, including how the harm is caused

21 **Which of the following, if true, would most strengthen the critics' position?**

① People's answers to trolley problems predict poorly how they behave in real emergencies.
② Trolley problems are popular in philosophy classes and appear in many introductory textbooks.
③ Most people give the same answer to the lever case every time they are asked.
④ Physicists also use simplified models to isolate forces such as gravity.

독해 8 · The Prison That Watches

In the late eighteenth century the philosopher Jeremy Bentham designed a prison he called the Panopticon. Cells were arranged in a ring around a central tower from which a guard could observe any prisoner, while blinds prevented prisoners from seeing whether anyone was actually watching. Bentham's insight was that constant observation was unnecessary. Because prisoners could never be sure they were unobserved, they would behave as if they were always being watched, effectively guarding themselves. The French philosopher Michel Foucault later treated the Panopticon as a symbol of modern power, which operates less through visible force than through the internalized sense of being observed. Schools, factories, and hospitals, he argued, shape behavior through examinations, records, and routines that make individuals visible and comparable. Today the comparison is often extended to digital life, where data about our movements and purchases is collected continuously. There is an important difference, however. Bentham's prisoners knew they might be watched and changed their behavior accordingly, whereas much digital collection happens invisibly, so its power may lie less in disciplining behavior than in predicting and influencing it without our awareness.

22 **According to the passage, how does the Panopticon control prisoners?**

① By physically punishing prisoners who misbehave in full view of the others
② By having guards in the central tower watch every prisoner at every moment
③ By allowing prisoners to watch the guards and report on their conduct
④ By making them unsure whether they are watched, so they regulate their own behavior

23 **What difference between the Panopticon and digital data collection does the author emphasize?**

① Digital collection often goes unnoticed, so it may shape behavior through prediction rather than self-discipline.
② The Panopticon was even more invisible than digital collection, since prisoners could never see the guard.
③ Digital data is never used to influence behavior, only to record movements and purchases.
④ Digital collection is less extensive than the Panopticon because it tracks only online activity.

24 **Which of the following best illustrates Foucault's idea of power as described in the passage?**

① A thief who is caught on a security camera and arrested shortly after a robbery
② A police officer who stops a speeding car and issues a fine to the driver
③ Employees who work harder because their output is recorded and ranked, even with no manager around
④ A king who orders his soldiers to arrest critics and punish them publicly as a warning to others

독해 9 · Locked In by History

The arrangement of letters on most keyboards, beginning with QWERTY, was developed for mechanical typewriters in the 1870s. Some economists have claimed that alternative layouts are faster and that we keep QWERTY only because everyone already learned it. The story became the standard illustration of path dependence: the idea that early, sometimes accidental choices can lock a society into an inferior technology. Once many people use a standard, switching becomes costly, since typists would need to retrain and manufacturers would need to coordinate a change. Later research complicated the tale. Careful reviews found that the evidence for the superiority of the main rival layout came largely from studies conducted by its own inventor, and independent tests showed only small differences. If the alternative is barely better, sticking with the familiar standard may be perfectly rational. Path dependence remains a real phenomenon in areas such as railway gauges and electrical plugs. But the QWERTY debate shows that claims of being locked into an inferior choice require evidence that the alternative is substantially better, not merely different or newer.

25 How did later research change the interpretation of the QWERTY story?

① It showed that path dependence never occurs, even in railway gauges and electrical plugs.
② It suggested the supposedly superior rival was not clearly better, weakening QWERTY as an example of lock-in.
③ It proved that QWERTY is the fastest possible layout and that its rivals are slower.
④ It found that typewriters were invented in the twentieth century, not in the 1870s.

26 Why is the fact that the main evidence came from the inventor's own studies significant?

① It raises the possibility of bias in the evidence for the alternative layout.
② It shows that inventors are the best judges of their inventions' real performance.
③ It proves that the inventor deliberately falsified his results to promote his layout.
④ It means that QWERTY and its rival were designed by the very same person.

27 According to the author, what is required to show that a society is locked into an inferior technology?

① Evidence that the technology is old and was designed for machines no longer used
② Evidence that an available alternative is considerably better, not just newer or different
③ Evidence that switching would be inexpensive for typists and manufacturers alike
④ Evidence that many people use the technology and would need costly retraining to abandon it

독해 10 · The Opportunity Cost of Time

Every choice involves giving something up. Economists call the value of the best alternative forgone the opportunity cost of a decision, and they insist that it is as real as any price paid in money. A student who spends an evening at a free concert pays nothing at the door, but if she would otherwise have earned fifty dollars tutoring, the concert has cost her fifty dollars. People are notoriously inconsistent about such costs. Many will drive across town to save ten dollars on a toaster but would not make the same trip to save ten dollars on a car, although the time and fuel cost the same in both cases. They judge savings as a percentage of the price rather than as an absolute amount weighed against what the trip costs them. Opportunity costs are also easy to overlook because they are invisible: no receipt records the book you did not read or the friend you did not call. Thinking in terms of opportunity cost does not mean treating every hour as money. It means asking, before committing time or resources, what else they could have been used for.

28 **Why is the behavior in the toaster-and-car example considered inconsistent?**

① People should never drive across town to save money, whatever the item costs.
② Cars are always cheaper at distant stores, so the longer trip is clearly worth making.
③ The trip's benefit and cost are the same in both cases, yet people decide differently based on price.
④ Toasters are more useful than cars, so saving on them matters more in everyday life.

29 **The author says opportunity costs are easy to overlook mainly because _____.**

① they leave no visible record of what was given up
② economists disagree about whether they really exist at all
③ they apply only to money, not to time or attention
④ they are always very small compared with the prices paid in money

30 **Which statement best reflects the author's view in the last two sentences?**

① Free activities have no costs, so people should choose them whenever they can do so.
② The concept is a tool for weighing alternatives, not a demand to price every moment of life.
③ Every hour should be converted into a monetary value before deciding how to spend it.
④ People should avoid spending time with friends, because those same hours could instead be used to earn money.

독해 11 · The Drifting Continents

In 1912 the German meteorologist Alfred Wegener proposed that the continents had once been joined and had slowly drifted apart. His evidence was striking: the coastlines of Africa and South America fit together like puzzle pieces, and identical fossils and rock formations appeared on continents now separated by oceans. Yet most geologists rejected the idea for decades. Their objection was not to the evidence of past connection but to the absence of a mechanism. Wegener could not explain what force could push enormous continents through the solid ocean floor, and the forces he suggested were shown to be far too weak. The theory was revived only in the 1960s, when maps of the ocean floor revealed long ridges where new crust forms and spreads outward. Continents, it turned out, do not plow through the ocean floor; they ride on moving plates that include it. Wegener is now often presented as a genius ignored by narrow-minded colleagues. The skepticism of his critics, however, was not unreasonable: a theory that describes a pattern without explaining how it arises leaves its most important question unanswered.

31 What was the main reason geologists rejected Wegener's theory?

① He was not a trained geologist but a meteorologist working outside his field.
② The coastlines of Africa and South America do not actually fit together.
③ It lacked a convincing explanation of how continents could move.
④ His fossil and rock evidence was later found to be fake or misidentified.

32 What is the author's attitude toward Wegener's critics?

① The author considers their doubts understandable given what was then known.
② The author believes they were completely correct to reject continental drift.
③ The author condemns them as narrow-minded colleagues who ignored a genius.
④ The author thinks they ignored all of Wegener's evidence about fossils and rocks.

33 Which of the following situations is most similar to the reception of Wegener's theory?

① An invention fails to sell because it is too expensive for most consumers to afford.
② A theory is accepted immediately because it is supported by a famous and respected scientist.
③ A scientist publishes fake data that other researchers later discover and expose.
④ A doctor sees a medicine relieve symptoms but cannot explain how, and colleagues wait for a mechanism.

독해 12 · Wash Your Hands

In the 1840s the Hungarian physician Ignaz Semmelweis noticed that women giving birth in one ward of a Vienna hospital died of fever far more often than those in another. The deadly ward was staffed by doctors who often came directly from performing autopsies; the safer ward was staffed by midwives who did not. Semmelweis concluded that some invisible matter from corpses was being carried on the doctors' hands, and he required washing with a chlorine solution. Death rates fell dramatically. Nevertheless, many colleagues rejected his conclusion, and he died years later in an asylum, his ideas still largely ignored. Part of the resistance came from pride: doctors did not like being told they were killing their patients. But Semmelweis also contributed to his own failure, publishing his results late, presenting them poorly, and attacking critics in angry letters. Moreover, without a theory of germs, which would arrive only decades later, his explanation seemed vague. His story is often told as a tale of truth defeated by prejudice, but it also shows that being right is not enough: evidence must be communicated in a way that others can evaluate and accept.

34 **Why did the difference between the two wards support Semmelweis's hypothesis?**

① The two wards were located in different hospitals with different standards of care.
② The safer ward had better food, cleaner beds, and more experienced staff.
③ The deadlier ward was staffed by people who handled corpses, while the safer one was not.
④ The doctors in the deadly ward were less experienced than the midwives next door.

35 **According to the passage, which of the following contributed to Semmelweis's failure to persuade others?**

① The failure of hand washing with a chlorine solution to reduce the number of deaths in the ward
② His late, poor presentation of results and the lack of a theory to explain them
③ His stubborn refusal to keep performing autopsies after he discovered the danger of corpses
④ The support he received from so many colleagues that his claims seemed ordinary and unremarkable

36 **What lesson does the author draw from the story?**

① Correct findings may still fail if they are not presented in a way others can assess.
② Doctors should never be trusted, since pride leads them to reject evidence of their own mistakes.
③ Scientific theories should be ignored if they are vague, as Semmelweis's explanation was at first.
④ Prejudice always defeats truth, as shown by the fact that Semmelweis died in an asylum still ignored.

독해 13 · Do Classmates Matter?

Parents often go to great lengths to place their children in schools with high-achieving students, assuming that strong peers will lift their child's performance. Measuring such peer effects, however, is surprisingly difficult. Students are not assigned to schools at random; families who choose selective schools often differ in income, motivation, and support at home. If their children do well, it is hard to know whether the classmates or the families deserve the credit. Researchers have tried to solve the problem by studying elite schools that admit students based on a test score cutoff. Students who score just above the cutoff are almost identical to those who score just below it, except that one group attends the elite school and the other does not. Comparing the two groups, several studies found little or no improvement in later test scores for those admitted. The impressive results of elite schools seemed to reflect mainly the students they selected rather than what happened inside. Such findings do not prove that peers never matter, but they suggest that the advantage parents pay for may be smaller than it appears.

37 Why does comparing students just above and just below the cutoff help researchers?

① It allows researchers to include only the best students and exclude weaker applicants.
② Students below the cutoff usually study harder to make up for being rejected.
③ The cutoff score is chosen at random each year, so admission is like a lottery.
④ The two groups are nearly identical, so later differences can be attributed to attending the school.

38 What do the findings described in the passage suggest about elite schools?

① They harm the students who attend them by lowering their later test scores.
② Their teachers are less skilled than those at ordinary schools, despite their reputation.
③ Peer effects are always large, which explains why parents pay so much to get in.
④ Their high results may largely reflect admitting students who would have done well anyway.

39 Which conclusion would the author most likely reject?

① Measuring peer effects requires careful research design that rules out family differences.
② Parents may overestimate the benefit of selective schools for their own children.
③ These studies prove that classmates have no influence on learning under any circumstances.
④ Family background can make the effects of schools look larger than they really are.

독해 14 · Immunity in Numbers

When enough people in a population are immune to a contagious disease, the disease cannot spread easily, and even those who are not immune are protected. This herd immunity shields newborns too young to be vaccinated and people whose medical conditions prevent vaccination. The threshold required depends on how contagious a disease is. For measles, which spreads extremely easily, roughly ninety-five percent of a population must be immune. Herd immunity creates a classic dilemma. If nearly everyone else is vaccinated, an individual who refuses still enjoys protection while avoiding even the small risks of the vaccine. Each refusal seems harmless, but if many people reason the same way, coverage drops below the threshold and outbreaks return. Ironically, the success of vaccination programs can encourage this behavior, because once a disease becomes rare, people forget how dangerous it was. Public health, in this sense, is not merely a personal choice but a shared good that each person's decision either supports or erodes.

40 **Why does the success of vaccination programs sometimes encourage people to refuse vaccines?**

① Governments stop providing vaccines once programs succeed in reducing cases.
② When a disease becomes rare, people underestimate its danger.
③ Successful programs make vaccines more dangerous for newborns.
④ Vaccines stop working once a disease becomes rare in a population.

41 **The behavior of an individual who refuses vaccination while relying on others' immunity is an example of _____.**

① the immunity threshold being set too high
② herd immunity failing completely in a population
③ a medical condition that prevents vaccination
④ free riding on a shared benefit

42 **Based on the passage, which disease would require the LOWEST vaccination rate to achieve herd immunity?**

① Measles, which spreads extremely easily among unvaccinated people
② A disease that spreads from each infected person to very few others
③ A disease that spreads easily through the air in crowded places
④ A disease even more contagious than measles in every setting

독해 15 · The Confident Beginner

A widely cited study from 1999 reported that people who performed worst on tests of logic and grammar greatly overestimated their own abilities, while top performers slightly underestimated theirs. The authors suggested that incompetence carries a double burden: the skills needed to perform well are the same skills needed to recognize poor performance. The finding, now known as the Dunning-Kruger effect, became a popular way of mocking overconfident people. Statisticians have since raised a complication. If people's self-estimates are only loosely related to their real scores, then those who score lowest will tend, simply by chance, to rate themselves above their score, and those who score highest will tend to rate themselves below it. Combined with a general tendency for everyone to think they are above average, this statistical pattern can reproduce much of the original graph without any special blindness among the unskilled. Researchers continue to debate how much of the effect is psychological and how much is statistical. The case is a reminder that a striking pattern in data can arise from the way it is measured rather than from the phenomenon it appears to show.

43 What is the statisticians' main point about the Dunning-Kruger effect?

① Top performers always overestimate themselves, just as low performers do on hard tests.
② Loose self-assessment plus a general above-average bias could produce the pattern without any special blindness.
③ Low performers are in fact more skilled than their test scores make them appear.
④ The original study used fake data, so its graph cannot be reproduced at all.

44 According to the original authors, why do low performers fail to recognize their poor performance?

① They are never told their scores, so they cannot compare themselves with others.
② They are too proud to admit mistakes, especially when others are watching them.
③ The skills needed to perform well are the same ones needed to judge performance.
④ The tests were deliberately designed to confuse them with tricky questions about logic and grammar.

45 The lesson in the last sentence is best illustrated by which example?

① A runner trains hard every day for months and finally wins an important regional race.
② A student studies harder after a poor midterm and steadily improves her grades by the final exam.
③ A doctor prescribes a new medicine that cures a disease in nearly all of the patients who take it.
④ A survey finds complainers less satisfied, but only because it reached only people who had called customer service.

독해 16 · Same Facts, Different Choices

Imagine a disease expected to kill six hundred people. Program A will save two hundred people for certain; Program B has a one-third chance of saving all six hundred and a two-thirds chance of saving no one. When the choice is described this way, most people prefer the certain option. Now describe the same programs differently: under A, four hundred people will die for certain; under B, there is a one-third chance that no one will die and a two-thirds chance that all six hundred will die. With this wording, most people choose the gamble. The outcomes are mathematically identical; only the frame has shifted from lives saved to lives lost.
Psychologists Amos Tversky and Daniel Kahneman used this experiment to show that people tend to avoid risk when considering gains but seek risk when facing losses. The finding troubled economists, whose models assumed that preferences depend on outcomes, not on descriptions. It also has practical consequences, since doctors, marketers, and politicians can influence decisions simply by choosing which frame to present.

46 **Why did the experiment trouble economists?**

① It demonstrated that people always prefer certain outcomes to gambles, however the choice is worded.
② It showed that people's choices can change when only the description of identical outcomes changes.
③ It showed that diseases are too unpredictable for economic models to handle.
④ It proved that most people cannot do the arithmetic needed to compare programs.

47 **A doctor wants a patient to choose surgery. Based on the passage, which description is most likely to encourage the choice?**

① "Some patients do not survive this surgery."
② "Ninety percent of patients survive this surgery."
③ "The outcome of this surgery is uncertain for everyone."
④ "Ten percent of patients die from this surgery."

48 **The passage implies that in the "lives lost" frame, people chose the gamble because _____.**

① they misunderstood the probabilities attached to each of the programs
② they were willing to take risks to avoid a certain loss
③ the gamble saved more lives on average than the certain option did
④ they wanted to save exactly two hundred people for certain

독해 17 · The Number That Sticks

In one experiment, participants spun a wheel that landed on either ten or sixty-five, and were then asked to estimate the percentage of African nations in the United Nations. Those who saw sixty-five gave much higher estimates than those who saw ten, although everyone knew the wheel was random. This tendency to rely on an initial number, even an irrelevant one, is called anchoring. People seem to start from the anchor and adjust away from it, but they stop adjusting too soon. Anchoring appears in many real settings. A high asking price in a negotiation pulls the final agreement upward, and judges given a prosecutor's demand for a long sentence tend to impose longer sentences. Even experts with relevant knowledge are affected, though less than novices. One partial remedy is to generate a counter-anchor deliberately, asking what reasons might justify a very different number before settling on an estimate. Simply knowing about the bias, by contrast, does surprisingly little to reduce it.

49 Why is the wheel experiment especially convincing evidence of anchoring?

① Participants knew the number was random and irrelevant, yet it still influenced their answers.
② The question was very easy, so any bias in the answers must come from the wheel.
③ Participants were experts on the United Nations who should have known the answer.
④ The wheel always landed on a number close to the correct answer.

50 According to the passage, which strategy is most likely to reduce anchoring?

① Always accepting the first number offered in order to save time
② Thinking of arguments for a very different value before making an estimate
③ Making estimates as quickly as possible to avoid overthinking the question
④ Reading about the anchoring effect so as to recognize the bias when it occurs

51 In a salary negotiation, how could a job applicant use the findings of this passage?

① By waiting for the employer to name a very low figure and then negotiating
② By choosing a salary at random, since any number influences the result
③ By stating a high but reasonable figure first to pull the final offer upward
④ By refusing to mention any number at all until the very end

독해 18 · Weighing the Odds

People do not treat probabilities in a straight line. A change from zero to one percent feels enormous, because an impossible event has become possible; a change from fifty to fifty-one percent barely registers. Similarly, a change from ninety-nine to one hundred percent feels far more valuable than the same one-point change in the middle, since it converts risk into certainty. Prospect theory, developed by Kahneman and Tversky, captures this pattern by assigning decision weights that differ from actual probabilities. Small probabilities are overweighted, and large probabilities are underweighted relative to certainty. This explains why the same person might buy both a lottery ticket and an insurance policy. The tiny chance of winning a fortune feels larger than it is, and so does the tiny chance of a disaster that insurance protects against. Companies exploit these tendencies by advertising rare jackpots prominently and by selling expensive warranties against unlikely breakdowns. Recognizing the pattern will not make us perfectly rational, but it can help us notice when a small probability is being made to feel larger than it is.

52 **According to prospect theory, why might a person buy both a lottery ticket and insurance?**

① Both involve tiny probabilities that people weigh more heavily than their actual size.
② Both always produce a profit for the buyer over the long run.
③ Lottery tickets and insurance have roughly the same price for most buyers.
④ People who buy insurance are always risk-seeking in every other kind of decision too.

53 **Which change in probability would people likely value MOST, according to the passage?**

① A treatment that raises survival from 60% to 61%
② A treatment that raises survival from 99% to 100%
③ A treatment that raises survival from 70% to 71%
④ A treatment that raises survival from 50% to 51%

54 **An electronics store offers an expensive warranty against a breakdown that rarely happens. The passage suggests that this strategy works because _____.**

① warranties are required by law for most electronics
② customers overweight the small chance of breakdown
③ customers enjoy paying extra for peace of mind
④ breakdowns are actually very common in cheap electronics

독해 19 · Why Voters Don't Study

Many citizens know surprisingly little about politics, unable to name their representatives or explain major policies. Some economists argue that this ignorance is not laziness but a rational response to incentives. Gathering political information takes time and effort, while the chance that a single vote will decide a national election is extraordinarily small. From a purely individual point of view, the cost of becoming informed outweighs the expected benefit. The same people may research carefully before buying a car, because that decision depends on them alone. This rational ignorance poses a challenge for democracy, since voters who know little may be swayed by slogans or by small, well-organized groups that do pay attention. Others respond that voters need not know details to make reasonable choices. They can rely on shortcuts such as party labels, endorsements from trusted organizations, and their sense of whether life has improved. Whether such shortcuts are adequate remains one of the central questions about how well democracies can function.

55 **Why is the comparison with buying a car relevant to the argument?**

① It proves that cars matter more to most citizens than national elections do.
② It shows that voters are generally lazy, whether they are buying cars or voting.
③ It shows that people who ignore politics still research decisions that depend on them alone.
④ It suggests that elections should be organized more like car sales, with more choice.

56 **What concern about rational ignorance does the passage raise?**

① Voters will stop voting altogether once they realize their vote rarely matters.
② Uninformed voters may be easily influenced by slogans or organized interest groups.
③ Car prices will rise as voters spend more time researching purchases.
④ Elections will become too expensive because campaigns must educate every voter in detail.

57 **Which of the following is an example of the "shortcuts" mentioned in the passage?**

① Voting for a candidate because a consumer group you trust recommends her
② Studying economics carefully before every election to understand policy proposals
③ Interviewing the candidate personally about each of her major policies
④ Reading every bill the candidate has voted on during her years in office

독해 20 · The Pull Toward the Middle

Imagine voters arranged along a line from the most left-leaning to the most right-leaning, each choosing the candidate closest to his or her own position. If there are two candidates, each can win more votes by moving toward the center, because voters on the extreme will still prefer the closer candidate. The candidate who captures the median voter, the one exactly in the middle, wins the election. This median voter theorem predicts that two-party competition pushes both parties toward similar, moderate positions. Yet in many democracies, parties have grown more polarized rather than less. Political scientists point to features the simple model ignores. Candidates must first win primary elections dominated by more extreme party members, and turnout matters: a candidate who excites a passionate base may gain more than one who wins over a few moderates. Moreover, real political views do not fall along a single line. The theorem remains useful not because it describes reality exactly, but because the ways reality departs from it reveal which forces are actually at work.

58 **Why does the simple model predict that candidates will move toward the center?**

① The law in most democracies requires candidates to adopt moderate positions before an election.

② Extreme voters do not vote, so only those near the center need to be persuaded.

③ Extreme voters still choose the nearer candidate, so moving toward the middle gains votes without losing any.

④ Candidates personally prefer moderate views and adopt them regardless of where voters stand.

59 **Which factor mentioned in the passage helps explain why parties may become more extreme?**

① The existence of exactly two candidates competing for the same voters

② The fact that voters choose whichever candidate is closest to them

③ The need to win primaries in which committed partisans dominate

④ The location of the median voter at the exact center of the line

60 **According to the last sentence, why is the theorem still valuable?**

① It shows that voters do not matter once parties have chosen their positions.

② It proves that polarization is impossible wherever two parties compete for the median voter.

③ It perfectly predicts the outcome of every election in a two-party system.

④ Comparing its predictions with reality helps identify the forces that cause the differences.

독해 21 · Cursed by Riches

It seems obvious that a country blessed with oil or minerals should grow richer than one without them. Yet many resource-rich countries have grown more slowly, suffered more corruption, and experienced more conflict than their resource-poor neighbors. Economists call this pattern the resource curse. Several mechanisms have been proposed. Large resource exports can raise the value of a country's currency, making its other industries, such as manufacturing, less competitive abroad. Commodity prices swing wildly, so governments that depend on them face cycles of boom and bust. Most importantly, a government that can fund itself from resource revenues does not need to tax its citizens, and therefore has less reason to listen to them. The curse, however, is not destiny. Norway, which had strong institutions before discovering oil, saved its revenues in a fund managed for future generations, and Botswana used diamond income to build schools and roads. The decisive factor appears to be the quality of institutions when the wealth arrives, not the wealth itself.

61 **According to the passage, why might resource wealth weaken the link between a government and its citizens?**

① Citizens in resource-rich countries lose interest in voting once they no longer pay taxes.
② Resource wealth makes governments poorer by exposing them to wild swings in prices.
③ Taxes are prohibited by law in most resource-rich countries in order to share the wealth fairly.
④ A government that does not rely on taxes has less need to answer to taxpayers.

62 **The examples of Norway and Botswana are used to show that _____.**

① resource revenues should be spent immediately rather than saved for the future
② all resource-rich countries eventually become wealthy if they wait long enough
③ diamonds are a more reliable source of income than oil
④ the resource curse can be avoided when institutions are strong

63 **Which situation would the author most likely predict to lead to the resource curse?**

① A country with strong institutions discovers a small amount of gold.
② A country with weak courts and widespread corruption discovers vast oil reserves.
③ A country saves its mineral revenues in a fund for future generations.
④ A country with no natural resources develops a manufacturing industry.

독해 22 · Why Trade Benefits Even the Less Efficient

Suppose one country can produce both cloth and wine more efficiently than another. It might seem that the more efficient country has nothing to gain from trade. The economist David Ricardo showed in 1817 that this is wrong. What matters is not absolute advantage but comparative advantage: the good each country can produce at the lowest opportunity cost, meaning the least sacrifice of the other good. If the efficient country is vastly better at wine but only slightly better at cloth, it gains by specializing in wine and importing cloth. The less efficient country, by specializing in cloth, also ends up with more of both goods than it could produce alone. The same logic applies to individuals. A lawyer who types faster than her assistant still benefits from hiring him, because every hour she spends typing is an hour not spent on far more valuable legal work. Comparative advantage explains why trade can benefit all parties overall, though it does not guarantee that every worker within a country gains, which is why the politics of trade remain contentious.

64 Why does the lawyer benefit from hiring an assistant who types more slowly than she does?

① The assistant has an absolute advantage in typing, since he actually types faster than she does.
② Typing is not really necessary for lawyers, whose work is mostly done in court.
③ Assistants are usually paid more than lawyers for each hour of routine office work.
④ Her time is worth more in legal work, so giving up typing costs her little.

65 Which statement best expresses the principle of comparative advantage?

① Each party should specialize where its sacrifice is smallest, even if another party is better at everything.
② Countries should produce everything they need themselves to avoid depending on trade partners.
③ Only the most efficient country should produce goods, since it wastes the fewest resources.
④ Trade benefits only the more efficient party, while the other loses some of its industries.

66 Why does the author say the politics of trade remain contentious?

① Although trade benefits countries as a whole, some workers within a country may lose.
② Trade always harms the less efficient country, which must abandon its best industries.
③ Lawyers and other professionals oppose free trade because it lowers their fees.
④ Ricardo's theory has been disproved by later evidence that efficient countries gain nothing from trade.

독해 23 · Raising the Floor

Basic economic theory predicts that a minimum wage set above the market rate will reduce employment, since employers buy less of anything when its price rises. In 1994 two economists challenged this prediction by comparing fast-food restaurants in two neighboring American states, one of which had just raised its minimum wage. They found no decline in employment in the state with the higher wage. One explanation is that in many local labor markets, a few large employers have the power to pay workers less than they would earn in a fully competitive market. In such cases, a moderate minimum wage can raise pay without reducing jobs, and may even attract more workers. The study set off decades of research, and the results remain debated. Most economists now agree that modest increases have small employment effects, while very large increases, especially in low-wage regions, are more likely to cost jobs. The debate illustrates how a simple model can be a useful starting point while still failing to describe markets in which its assumptions do not hold.

67 **What assumption of the basic theory is challenged by the explanation in the fourth sentence?**

① That workers always prefer higher wages to more secure employment
② That labor markets are fully competitive, leaving no employer able to hold down wages
③ That fast-food restaurants hire mostly young and inexperienced workers
④ That employers want to make profits and will cut jobs whenever their labor costs rise

68 **Which of the following statements reflects the current view described in the passage?**

① Modest increases have little effect on jobs, but very large ones may reduce employment.
② Minimum wage increases always destroy many jobs, just as basic economic theory predicts.
③ Economists have stopped studying the minimum wage because the 1994 study settled the question.
④ Minimum wage increases always create jobs by attracting more workers into the labor market.

69 **Why was comparing two neighboring states a useful research design?**

① The states were alike in most respects, so job differences could be tied to the wage change.
② The states had identical laws in every respect, including their minimum wage rates.
③ It allowed researchers to avoid collecting data on individual restaurants and workers.
④ One state had no fast-food restaurants at all, so it served as a clean comparison group for the other.

독해 24 · Insured and Careless

Insurance protects people from losses, but it can also change how they behave. A driver whose car is fully insured may park in riskier places; a company whose losses will be covered by the government may take bigger gambles. Economists call this moral hazard: when someone else bears the cost of a risk, people take less care to avoid it. The term does not imply that people are dishonest; they are simply responding to changed incentives. Insurers manage the problem in several ways. Deductibles require the insured to pay the first part of any loss, so they still have a stake in avoiding it. Premiums may rise after claims, and policies may require precautions such as smoke detectors. The concept became widely discussed after the 2008 financial crisis, when governments rescued large banks to prevent economic collapse. Critics warned that if banks expect to be rescued whenever they fail, they will continue to take excessive risks, making the next crisis more likely.

70 How does a deductible reduce moral hazard?

① It transfers all costs to the insurance company once a claim has been made.
② It cancels the insurance automatically after the first claim is filed by the driver.
③ It makes the insured pay part of any loss, giving them a reason to be careful.
④ It lowers the premium for careless drivers who park in risky places, as a reward for honesty.

71 The author emphasizes that moral hazard does not imply dishonesty in order to _____.

① defend insurance companies against the common criticism that they treat their customers as cheats
② clarify that the behavior is a predictable response to incentives rather than a moral failing
③ show that banks rescued in 2008 were always honest in their dealings
④ argue that insured people never really change their behavior after buying coverage

72 Which of the following is the best example of moral hazard?

① A company installs smoke detectors because its policy requires such precautions.
② A person buys health insurance because she knows she is very likely to get sick soon.
③ A homeowner with full flood insurance skips a cheap barrier that would protect the house.
④ A driver pays a higher premium after causing an accident in a crowded parking lot.

독해 25 · The Market for Lemons

In a famous 1970 paper, the economist George Akerlof asked why used cars sell at such a large discount compared with new ones, even when they are only a few months old. His answer lay in unequal information. Sellers know whether their car is a good one or a "lemon," a car with hidden defects, but buyers cannot easily tell the difference. Buyers therefore offer only an average price that reflects the risk of getting a lemon. Owners of good cars find this price too low and withdraw from the market, which lowers the average quality of cars for sale. Buyers respond by offering even less, and in extreme cases the market for good used cars can collapse entirely. This process, called adverse selection, appears wherever one side of a transaction knows more than the other. People who expect to need medical care are more eager to buy health insurance, which raises costs and drives out healthier customers. Warranties, inspections, and reputation systems exist largely to overcome this problem by giving buyers information they would otherwise lack.

73 **Why do owners of good used cars withdraw from the market?**

① Buyers who cannot tell good cars from lemons offer a price too low for good ones.
② Good used cars are legally restricted from resale for a period after purchase.
③ Owners of good cars prefer to keep them forever rather than buy new ones.
④ Buyers actually prefer lemons, since they are cheaper to buy and easier to repair.

74 **Which of the following would most directly reduce the problem described in the passage?**

① A law that lowers the price of all used cars to the same average level
② An independent inspection service that certifies the condition of used cars
③ Preventing sellers from advertising their cars as being in good condition
④ Requiring buyers to pay in cash so that dealers cannot charge interest

75 **The health insurance example shows that _____.**

① insurers usually know far more about their customers' future health needs than the customers themselves do
② healthy people are more likely than sick people to buy health insurance
③ health insurance becomes cheaper as more eager customers join the market
④ adverse selection can occur when buyers, rather than sellers, have more information

독해 26 · What Diplomas Signal

College graduates earn substantially more than people without degrees, and this is usually taken as evidence that education makes workers more productive. The economist Michael Spence proposed a provocative alternative. Suppose employers cannot directly observe which applicants are capable and diligent. Completing a demanding degree is easier for people who already possess those qualities, so a diploma can serve as a signal of ability even if the courses themselves teach nothing useful for the job. On this view, part of what students buy with tuition is not knowledge but a credential that separates them from others. Evidence for signaling includes the "sheepskin effect": earnings jump sharply upon completing the final year of a degree, more than the extra year of learning alone would seem to justify. Most economists believe both explanations contain some truth. The balance between them matters for policy, however: if education mainly builds skills, expanding it raises a society's productivity, but if it mainly signals, expanding it may simply start a costly race for ever-higher credentials.

76 **Why is the "sheepskin effect" considered evidence for the signaling theory?**

① It proves that education teaches nothing useful, since earnings rise only at graduation.
② Graduation raises earnings more than one extra year of learning would, suggesting the credential itself pays.
③ It shows that diplomas printed on sheepskin are more valuable than paper ones.
④ It shows that students actually learn the most in their first year, when courses are most basic.

77 **According to the signaling theory, why can a degree indicate ability even if its courses are irrelevant to the job?**

① Capable and diligent people find it easier to complete a demanding degree.
② Degrees are awarded randomly, so they carry no real information about the job.
③ Employers can directly observe ability through interviews and written tests.
④ Every course teaches essential job skills that employers value highly.

78 **What policy concern does the passage raise if education functions mainly as a signal?**

① Tuition would become free as governments expand access to universities.
② Expanding education would always raise a society's overall productivity.
③ Employers would stop hiring graduates and rely on their own tests.
④ Expanding education could spark a costly race for credentials without raising productivity.

독해 27 · Who Pays for the Lighthouse?

Economists define a public good as one that is non-excludable and non-rivalrous. Non-excludable means that people who do not pay cannot easily be prevented from using it; non-rivalrous means that one person's use does not reduce what is available to others. National defense is the classic example. Because people can benefit without paying, private markets tend to provide too little of such goods, and governments typically fund them through taxes. For generations, textbooks used the lighthouse as another standard example: a ship cannot be stopped from seeing the light, so no private firm would build one. In 1974 Ronald Coase examined the history of British lighthouses and found that many had in fact been built and run by private operators. They collected fees from ships at nearby ports, where vessels could not avoid paying. The light itself was non-excludable, but the port was not, and linking the two made private provision possible. Coase's point was not that governments are unnecessary, but that economists should study how institutions actually work before declaring that markets must fail.

79 How did private lighthouse operators overcome the problem of non-excludability?

① They charged ships at ports, which ships could not use without paying.
② The government forced ships to pay for the light directly while at sea.
③ They turned off the light for any ship that had not paid in advance.
④ They built lighthouses only to guide their own fleets of ships.

80 What was the main point of Coase's study?

① National defense should be privatized, just as British lighthouses were in the past.
② Economists should examine real institutions before assuming that markets cannot provide certain goods.
③ Governments should never provide public goods, since private firms can always do so.
④ Lighthouses are not as useful to ships as textbooks had long assumed.

81 Which of the following best fits the definition of a non-rivalrous good?

① A radio broadcast, which extra listeners can hear without reducing its quality for others
② A seat on a crowded train, which becomes unavailable once another passenger takes it
③ A sandwich, which can be eaten by only one person no matter how many want it
④ A parking space in a full lot, which one more driver cannot use without displacing another

독해 28 · The Value of Being Connected

A telephone is useless if no one else has one, and becomes more valuable as more people join the network. Economists call this property a network effect. Social media platforms, payment systems, and messaging apps all display it. Network effects create a distinctive pattern of competition. Early in a market, several rivals may compete, but once one gains a lead, its growing value attracts still more users, and the market can tip toward a single dominant firm. A newcomer with a better product may still fail, because users would have to abandon the place where all their contacts already are. This is one reason why technology markets often feature "winner-take-most" outcomes. The same effects that make networks valuable also make them hard to regulate. Breaking up a dominant platform might reduce its value to users, while leaving it intact allows it to set terms that users cannot easily refuse; some economists therefore propose requiring platforms to let users move their data and contacts freely to competitors.

82 Why might a newcomer with a better product fail in a market with strong network effects?

① Network effects make all products identical, so quality cannot be noticed by users.
② Governments ban new companies from entering markets that one firm already dominates.
③ Better products are always more expensive, so users stay with the cheaper dominant one.
④ Switching would cost users the benefit of being where their contacts already are.

83 What is the purpose of the proposal to let users move their data and contacts to competitors?

① To lower switching costs so rivals can compete without breaking up the dominant platform
② To prevent users from communicating with contacts on other platforms
③ To make networks less valuable so that no single firm can dominate
④ To force all users to leave the dominant platform and join its competitors

84 According to the passage, why are dominant networks difficult to regulate?

① Laws written for older industries do not apply to technology companies or to the platforms they run.
② They are not profitable enough to pay the costs of complying with new rules.
③ Dividing them may lower their value to users, while leaving them intact lets them dictate terms.
④ They have so many users that regulators cannot possibly monitor every account.

독해 29 · Destruction That Creates

The economist Joseph Schumpeter described capitalism as a process of "creative destruction." New technologies and business models do not simply add to the economy; they replace older ones, driving established firms out of business. Automobiles destroyed the carriage industry, digital cameras devastated film manufacturers, and streaming services undermined video rental stores. Schumpeter argued that this turbulence, not stable competition among similar firms, is the main source of long-term economic growth. The destruction, however, is not abstract. Workers whose skills become obsolete may lose not only jobs but also the value of years of experience, and entire towns built around a dying industry can decline. The gains are spread widely across consumers, while the losses are concentrated on specific people and places. This asymmetry helps explain why innovation often faces political resistance even when it benefits society overall. Many economists argue that the best response is not to block change but to cushion its victims through retraining, income support, and help in relocating.

85 **According to the passage, why does innovation often face political resistance?**

① Innovation always harms society overall, even when it lowers prices for consumers.
② Consumers dislike new products and prefer the ones they already know well.
③ Its losses fall on identifiable groups, while its gains are spread thinly across consumers.
④ Politicians are not interested in technology and rarely understand how new industries develop.

86 **Which policy would the economists mentioned at the end most likely support?**

① Ending all unemployment benefits so that displaced workers move more quickly to new jobs
② Banning streaming services to protect video rental stores and the towns around them
③ Funding job training for workers whose industry has been replaced by new technology
④ Preventing companies from adopting new technologies until their workers have been retrained

87 **In Schumpeter's view, what is the main source of long-term growth?**

① Government ownership of the key industries most exposed to new technology
② The replacement of old products and firms by new ones
③ Protecting existing companies from failure during periods of rapid change
④ Stable competition among similar firms within established industries

독해 30 · Bad Money Drives Out Good

In the sixteenth century, English coins were supposed to contain a fixed amount of silver, but many had been clipped or debased, so they held less. By law, all coins of the same face value had to be accepted equally. People responded predictably: they spent the debased coins and kept the full-weight ones, which were worth more as metal. Soon only the inferior coins circulated. The principle, associated with the financier Thomas Gresham, is usually summarized as "bad money drives out good." It is important to notice the condition that made it work: the law forced people to accept both coins at the same value. Where people are free to value money as they choose, the opposite can happen. In economies suffering from runaway inflation, sellers often refuse the local currency and demand stable foreign money, so good money drives out bad. Gresham's law, in other words, is not a law of nature but a consequence of a particular legal arrangement.

88 **Why did only debased coins remain in circulation?**

① Debased coins were lighter and easier to carry, so merchants preferred them in daily trade.
② People did not know which coins were debased, so they spent whatever they received.
③ Full-weight coins were banned by law once the government discovered how many had been clipped or debased.
④ Because the law required equal acceptance, people spent the weaker coins and hoarded the full ones.

89 **What condition does the author identify as necessary for Gresham's law to operate?**

① A legal requirement that different coins be accepted at the same value
② A period of runaway inflation that makes the local currency unreliable
③ A shortage of silver for minting new coins
④ The widespread use of stable foreign currency by sellers

90 **The example of runaway inflation is used to show that _____.**

① people free to choose which money to accept will prefer the more reliable kind
② foreign currencies are always less trustworthy than local ones during an inflation
③ inflation makes old coins more valuable as metal than as money
④ Gresham's law applies in all situations, whether or not the law fixes the value of coins

독해 31 · Beyond the Gene

Epigenetics studies chemical marks that sit on DNA and influence whether genes are switched on or off, without changing the genetic code itself. These marks can respond to diet, stress, and toxins, which has led to excitement about how experience might be written into biology. Popular accounts often go further, claiming that the trauma of one generation can be passed down through epigenetic marks to children and grandchildren. In plants and some laboratory animals, certain marks do persist across generations. In mammals, however, most epigenetic marks are erased twice during early development, once in the cells that will become eggs and sperm and again shortly after fertilization. Human studies claiming inheritance face an additional problem: parents pass on not only biology but also environments. A child raised by traumatized parents may show effects of that upbringing, which can easily be mistaken for biological inheritance. Epigenetics is a genuine and important field. The danger lies in treating early or animal-based findings as established facts about human inheritance.

91 Why is the erasure of epigenetic marks in mammals important to the argument?

① It makes transmission of acquired marks across human generations less likely than in some other organisms.
② It proves that epigenetic marks do not exist at all in mammals, including humans.
③ It explains why plants respond more strongly to stress and toxins than animals do.
④ It shows that trauma has no lasting effects on the individuals who experience it.

92 What alternative explanation does the author offer for apparent epigenetic inheritance in humans?

① Researchers routinely fabricate data in order to support exciting claims about inheritance.
② Children inherit changes in their parents' DNA sequence caused by stress and diet.
③ Children may be shaped by the environment their parents create, not by inherited chemical marks.
④ Trauma is really caused by poor diet, which parents and children usually share at home for years.

93 The author's overall attitude toward epigenetics is best described as _____.

① completely dismissive of the field and its laboratory findings
② uninterested in its findings except those concerning plants
③ uncritically enthusiastic about popular claims that trauma is inherited across many generations
④ supportive of the field but critical of exaggerated claims about it

독해 32 · The Changing Brain and Its Limits

For much of the twentieth century, scientists believed the adult brain was essentially fixed, unable to form new connections or recover from damage. Research has overturned that view. London taxi drivers who memorize the city's complex streets develop an enlarged region involved in spatial memory, and stroke patients can regain abilities as other brain areas take over lost functions. This capacity, called neuroplasticity, has become a favorite theme of self-help books and brain-training companies. Some promise that a few minutes of games each day will make users smarter in every area of life. The evidence for such broad benefits is weak. People who practice a game generally get better at that game and at very similar tasks, but improvements rarely transfer to unrelated abilities such as reasoning or memory in daily life. Plasticity, in fact, is specific: the brain changes in response to what it actually does. The taxi drivers' brains changed because they spent years navigating real streets, a lesson suggesting that the best way to improve an ability is to practice that ability itself.

94 What is the main criticism of brain-training companies in the passage?

① Neuroplasticity does not exist in adults, so brain training cannot change anything.
② Their claims of broad improvement are unsupported, since gains rarely spread beyond trained tasks.
③ Their games are too difficult for most users to keep practicing every day.
④ They charge too little for products that require years of practice to work.

95 What does the author mean by saying that plasticity is "specific"?

① Plasticity occurs only in taxi drivers who memorize the streets of large cities.
② The brain adapts to the particular activities it performs rather than improving in general.
③ Plasticity happens only after a stroke, when other areas take over lost functions.
④ Only one region of the brain, the one involved in spatial memory, can ever change.

96 Based on the passage, which method would most likely improve a student's ability to write essays?

① Reading about neuroplasticity and how the brain forms new connections
② Solving logic puzzles that are unrelated to writing
③ Playing memory games on a phone for a few minutes every day
④ Writing many essays and receiving feedback on them

독해 33 · The Body's Clock

Nearly every cell in the human body contains a molecular clock that runs on a cycle of roughly twenty-four hours. These circadian rhythms regulate sleep, body temperature, hormone release, and even the timing of digestion. A master clock in the brain keeps the others synchronized, using light entering the eyes as its main signal of the time of day. Modern life frequently disrupts this system. Night-shift workers sleep during the day and eat at times when their digestive organs expect rest, so their internal clocks fall out of step with one another. Long-term shift work has been associated with higher rates of obesity, diabetes, and certain cancers. Researchers caution that these associations may partly reflect other factors, such as the kinds of people who take night jobs or the stress of irregular schedules. Still, laboratory studies in which volunteers' schedules are deliberately shifted show rapid changes in blood sugar control, supporting a direct effect. Since many jobs require night work, the practical question is how to reduce the harm, for example by keeping meal times regular and controlling exposure to light.

97 **Why are the laboratory studies mentioned in the passage important?**

① By deliberately shifting schedules, they show that clock disruption can directly harm health, not merely correlate with it.

② They show that light has no real effect on the master clock in the brain, contrary to earlier expectations.

③ They demonstrate that shift work causes cancer and diabetes in volunteers within a few days.

④ They prove that night workers were unhealthy people before they ever took night jobs.

98 **What concern do researchers raise about the link between shift work and disease?**

① Diseases such as diabetes cause people to seek night jobs rather than the reverse.

② The body clock does not exist in the digestive organs, only in the brain.

③ Traits of people who take night jobs, or other stresses, might partly explain the link.

④ Shift workers sleep too much during the day, which leaves them less active.

99 **Which recommendation is most consistent with the passage?**

① A night-shift nurse should eat at consistent times and manage her exposure to bright light.

② Night-shift workers should eat whenever they feel hungry, since their organs expect food at night.

③ All night work should be banned immediately, since it has been linked to obesity and cancer.

④ Shift workers should avoid sleeping during the day so that their clocks stay synchronized.

독해 34 · Giants and Dwarfs on Islands

Islands produce strange animals. Elephants on some Mediterranean islands shrank to the size of large pigs, while rats and lizards on other islands grew far larger than their mainland relatives. Biologists call this pattern the island rule: large animals tend to become smaller and small animals tend to become larger after colonizing islands. Several pressures may drive these changes. Islands usually offer limited food, which favors smaller bodies for large species that need enormous amounts to survive. At the same time, islands often lack large predators, so small animals no longer need to hide in tiny spaces and can grow bigger to compete for resources. The rule is a tendency rather than a law, and many species do not follow it. Recent analyses suggest that its strength depends on island size, isolation, and the presence of competitors. The island rule nevertheless offers a vivid demonstration that body size is not a fixed trait but an adaptation to circumstances.

100 According to the passage, why might small animals grow larger on islands?

① Without large predators they need not stay small, and larger size helps them compete for resources.
② Island climates are warmer and wetter, which makes all animals grow larger over time.
③ Small animals on islands begin hunting large animals, which gives them more food.
④ Islands offer unlimited food for small animals, since large species there tend to shrink.

101 Which finding would be most consistent with the factors described in the passage?

① A rat species grows larger on a small, isolated, predator-free island than on a large one with predators.
② All species on islands converge on exactly the same body size within a few generations.
③ Body size never changes after animals reach islands, whatever the food supply or predators.
④ Elephants become even larger on small islands with little food, where they face no competitors of any kind.

102 Why does the author describe the island rule as "a tendency rather than a law"?

① It has never actually been observed in nature, only predicted by mathematical models.
② It applies only to elephants and a few other large mammals.
③ Many species do not follow it, and its strength varies with conditions.
④ Biologists have rejected it completely in light of recent analyses.

독해 35 · Helping One's Relatives

Natural selection seems to reward selfishness: an animal that sacrifices itself for others should leave fewer offspring and disappear from the population. Yet worker bees die defending their hive, and ground squirrels give alarm calls that attract predators to themselves. In 1964 the biologist W. D. Hamilton offered an explanation. Genes, not individuals, are what natural selection ultimately favors, and relatives share many of the same genes. A gene that leads an animal to help its siblings can spread if the benefit to the relatives, weighted by how closely related they are, exceeds the cost to the helper. The biologist J. B. S. Haldane is said to have joked that he would lay down his life for two brothers or eight cousins. Kin selection explains why altruism in nature is usually directed toward relatives, and why ground squirrels call more often when kin are nearby. It does not, however, explain all cooperation. Unrelated animals also help one another when favors are likely to be returned, and human cooperation among strangers on a massive scale requires additional explanations involving reputation, norms, and institutions.

103 What does Haldane's joke illustrate?

① Brothers are more important than cousins in every way, including in human social life.
② Biologists are unwilling to help others unless they receive something in return.
③ Altruism is impossible, because natural selection always rewards selfish individuals.
④ Sacrificing oneself makes genetic sense when it saves enough relatives who share one's genes.

104 Which observation would provide the strongest support for kin selection?

① Ground squirrels give alarm calls equally often regardless of which squirrels are nearby.
② Unrelated animals regularly exchange favors with one another when those favors are likely to be returned later.
③ Humans cooperate with strangers on a massive scale through reputation, norms, and institutions.
④ Ground squirrels call more often when relatives are nearby than when only unrelated squirrels are present.

105 What is the purpose of the last two sentences?

① To argue that humans never cooperate with strangers without a reward
② To prove that kin selection is false for most animal species
③ To indicate the limits of kin selection as an explanation of cooperation
④ To show that bees and squirrels help unrelated individuals as often as kin

독해 36 · Running to Stay in Place

In Lewis Carroll's Through the Looking-Glass, the Red Queen tells Alice that in her country "it takes all the running you can do, to keep in the same place." Evolutionary biologists borrowed the image to describe a puzzling feature of life. Species are constantly evolving, yet many do not seem to become better adapted over time. The reason is that their environments include other species that are evolving too. When a predator becomes faster, its prey must become faster just to survive at the same rate, and when a host develops resistance to a parasite, the parasite evolves new ways to infect it. Each improvement is canceled by a counter-improvement, so neither side gains a lasting advantage. The Red Queen hypothesis has been used to explain one of biology's great puzzles: the existence of sex. Asexual reproduction is more efficient, since every individual can produce offspring, but it creates copies that parasites, once adapted, can attack with ease. By shuffling genes in every generation, sexual reproduction keeps offspring a moving target.

106 **Why does the Red Queen image fit the evolutionary pattern described in the passage?**

① Species stop evolving once they are well adapted to their physical environment.
② Predators always win evolutionary races because they evolve faster than their prey.
③ Species evolve faster when their environments change as strangely as a looking-glass world.
④ Species must keep evolving merely to maintain their position relative to other evolving species.

107 **According to the passage, how does sexual reproduction help organisms against parasites?**

① It produces exact copies of successful parents, preserving their resistance to parasites.
② It produces genetically varied offspring, so parasites cannot easily adapt to all of them.
③ It eliminates parasites from the environment by changing the genes of the host.
④ It makes reproduction more efficient than asexual reproduction, since every single individual can produce offspring.

108 **Which situation is the best example of the dynamic described in the passage?**

① A plant grows a little taller every year because it receives more sunlight than its neighbors.
② A young bird learns a new song by imitating its parents and other adults.
③ A species becomes extinct after a volcanic eruption destroys its only island habitat.
④ Bacteria evolve resistance to an antibiotic, scientists develop another drug, and the bacteria evolve again.

독해 37 · Different Paths, Same Solution

Dolphins and sharks have strikingly similar streamlined bodies, yet one is a mammal and the other a fish, and their last common ancestor looked like neither. The resemblance arose because both faced the same physical problem: moving quickly through water. Biologists call this convergent evolution, the independent appearance of similar traits in unrelated lineages. Eyes with lenses have evolved separately in vertebrates and octopuses, and flight has arisen independently in insects, birds, bats, and extinct reptiles. Convergence has an important implication for how we think about evolution. Some scholars have argued that if the history of life were replayed, it would produce entirely different outcomes, because evolution depends on countless accidents. The frequency of convergence suggests a partial counterargument: physical and ecological constraints may channel evolution toward a limited set of workable designs. The details would surely differ, but certain solutions, like streamlined swimmers and camera-like eyes, might appear again and again.

109 What is the main implication of convergent evolution discussed in the passage?

① Dolphins and sharks are closely related, since they share a recent common ancestor.
② All animals will eventually come to look the same if they face similar physical problems.
③ Evolution is entirely random, so replaying history would produce completely different outcomes.
④ Evolution may be partly predictable, because similar problems tend to produce similar solutions.

110 Which of the following is an example of convergent evolution?

① A dog resembling its parents in size, color, and shape
② Bats and birds both developing wings, although their common ancestor could not fly
③ A plant losing its leaves in winter to conserve water
④ Two species of birds inheriting wings from a common ancestor that could already fly

111 The word "channel" in the seventh sentence is closest in meaning to _____.

① prevent
② broadcast
③ guide
④ reverse

독해 38 · The Otters and the Kelp

Along the Pacific coast of North America, sea otters were hunted almost to extinction for their fur by the early twentieth century. As the otters disappeared, so did vast underwater forests of kelp. The connection was sea urchins, spiny creatures that graze on kelp and are a favorite food of otters. Without otters to eat them, urchin populations exploded and stripped the seafloor bare. Where otters were protected and returned, urchins declined and the kelp forests recovered, along with the fish and other species that shelter in them. Ecologists describe sea otters as a keystone species, one whose influence on an ecosystem is far greater than its numbers would suggest. The term comes from architecture: remove the keystone from an arch, and the whole structure collapses. Identifying keystone species matters for conservation, because protecting them can benefit many other organisms at once. It is also a warning: the loss of a single species that seems unremarkable can set off changes that ripple through an entire ecosystem.

112 **Through what mechanism did the loss of sea otters lead to the loss of kelp forests?**

① Kelp needs nutrients from otters' fur and waste in order to grow.
② Otters directly planted kelp on the seafloor by burying urchin shells.
③ Without otters, sea urchins increased greatly and consumed the kelp.
④ Hunters destroyed the kelp forests while chasing otters along the coast.

113 **Why is the architectural metaphor of the keystone appropriate?**

① Removing a single, relatively small element can cause the entire structure to collapse.
② Kelp forests are shaped like arches that rise from the seafloor.
③ Keystones are the largest and heaviest stones in an arch.
④ Sea otters build structures like arches out of kelp and rocks.

114 **Which conservation strategy would the passage most clearly support?**

① Focusing protection efforts on species whose removal would disrupt many other species
② Protecting only the most numerous species in an ecosystem, such as sea urchins
③ Removing predators like otters in order to protect their prey
④ Ignoring species that seem unremarkable and focusing on larger animals

독해 39 · Did the Wolves Save Yellowstone?

In 1995, gray wolves were reintroduced to Yellowstone National Park after an absence of about seventy years. A popular story soon spread: by hunting elk and scaring them away from riverbanks, wolves allowed willows and aspens to regrow, which stabilized riverbanks and even changed the course of rivers. The idea of such a trophic cascade, a chain of effects running down a food web, is well established in some ecosystems. In Yellowstone, however, many ecologists believe the story has been oversimplified. Elk numbers also fell because of human hunting outside the park, severe winters, and the return of bears and cougars. Studies measuring elk behavior found little evidence that fear of wolves kept them away from rivers. Moreover, in places where beavers had disappeared, streams had cut deeper channels, so even reduced browsing did not allow willows to recover fully. The wolves certainly matter, but they are one force among many. The appeal of the simple story shows how much people prefer a single heroic cause to a tangle of interacting ones.

115 **According to the passage, why do many ecologists consider the popular story oversimplified?**

① Several other factors contributed to changes in elk numbers and plant recovery.
② Wolves were never actually reintroduced to Yellowstone after their long absence.
③ Trophic cascades do not exist in any ecosystem, including Yellowstone.
④ Elk numbers increased after wolves returned, because bears and cougars left.

116 **What role do beavers play in the author's argument?**

① Their absence deepened stream channels, limiting willow recovery even when elk browsing fell.
② Beavers are the main prey of wolves, so their decline left wolves hunting elk instead.
③ Beavers were reintroduced together with wolves to help restore the riverbanks.
④ Beavers caused the decline of elk by competing with them for willows and aspens.

117 **What general tendency does the author identify in the final sentence?**

① People generally prefer wolves to other predators such as bears and cougars.
② People prefer explanations with a single dramatic cause over complex, multi-causal ones.
③ Scientists dislike simple explanations even when the evidence supports them.
④ Ecosystems always have one main cause of change, even if it is hard to find.

독해 40 · The Other Carbon Problem

About a quarter of the carbon dioxide released by burning fossil fuels is absorbed by the oceans. This has slowed global warming, but it comes at a cost. When carbon dioxide dissolves in seawater, it forms carbonic acid, gradually lowering the ocean's pH. Since the industrial revolution, the surface ocean has become about thirty percent more acidic. The change matters especially for organisms that build shells and skeletons from calcium carbonate, such as corals, oysters, and some plankton. More acidic water reduces the availability of carbonate ions they need, making it harder and more energetically costly to build and maintain their structures. Because tiny shell-building plankton sit near the base of many marine food webs, effects on them could spread to fish and the people who depend on fishing. Unlike warming, ocean acidification cannot be addressed by proposals to reflect sunlight back into space, since those would not reduce the carbon dioxide itself. This is one reason scientists stress that cutting emissions remains essential even if other methods of cooling the planet are developed.

118 **Why would reflecting sunlight into space fail to solve ocean acidification?**

① It might reduce warming but would leave the carbon dioxide in the oceans unchanged.
② Sunlight has no effect on ocean temperature, so reflecting it would change nothing at all.
③ It would increase carbon dioxide emissions from the factories needed to build the reflectors.
④ It would make the oceans too alkaline for corals and oysters to build their shells.

119 **Why does the passage emphasize plankton's position in the food web?**

① Plankton are not affected by acidification, so they can buffer the effects on fish.
② Harm at the base could spread upward to fish and to people who depend on fishing.
③ Plankton release carbon dioxide, which makes the surrounding water more acidic.
④ Plankton are the largest marine animals and dominate most ocean ecosystems.

120 **Which of the following can be inferred from the passage?**

① Ocean acidification has stopped since the industrial revolution, as emissions have leveled off.
② Cutting emissions is unnecessary if the planet can be cooled by reflecting sunlight away.
③ The ocean's absorption of carbon dioxide has both reduced and created environmental problems.
④ Corals benefit from more acidic water, which supplies extra carbonate ions for skeletons.

독해 41 · Who Speaks in a Text?

For centuries, critics assumed that the meaning of a literary work was what its author intended. To understand a poem, one studied the poet's life, letters, and times. In 1967 the French critic Roland Barthes declared the "death of the author," arguing that once a text is written, its meaning is no longer controlled by the person who wrote it. A text, he wrote, is woven from countless earlier texts and conventions, and its unity lies not in its origin but in its destination: the reader. The idea liberated readers to find meanings an author might never have imagined. Critics, however, worried that it could make every interpretation equally valid. If the author's intention has no authority, what prevents a reader from claiming that a war poem is really about gardening? Defenders reply that rejecting the author's control does not mean rejecting the text's constraints. Words, grammar, and the patterns of the work itself still limit what can be persuasively argued, even if no single meaning is fixed in advance.

121 How do defenders of Barthes respond to the worry that all interpretations become equally valid?

① They argue that readers should not interpret texts at all, only describe them.
② They argue that the text's own language and structure still limit which readings are convincing.
③ They claim that the author's biography and letters still determine the text's meaning.
④ They simply agree that all interpretations are equally valid, since no meaning is fixed in advance.

122 What does Barthes mean by saying a text's unity lies "in its destination"?

① Texts should be written for specific places and audiences in mind.
② Texts have no unity at all once they leave the author's hands.
③ The text's meaning is assembled by the reader rather than determined by the writer.
④ The author's final intention, rather than earlier drafts, is the most important.

123 The example of a war poem being "really about gardening" is used to _____.

① show that war poems are often misunderstood by readers who ignore history
② argue that gardening is a more common theme in poetry than war
③ illustrate the critics' fear that interpretation could become arbitrary
④ prove that authors always control meaning, whatever readers may claim

독해 42 · The Narrator Who Cannot Be Trusted

Most stories invite readers to trust their narrators. Some, however, deliberately present narrators whose accounts are distorted by ignorance, self-interest, or self-deception. In Kazuo Ishiguro's The Remains of the Day, an aging butler describes his years of loyal service with great dignity. Gradually, readers realize that his employer supported fascist causes and that the butler has avoided facing what his loyalty meant, as well as the love he let pass. The power of such a narrator lies in the gap between what he says and what the reader comes to understand. The reader must notice small contradictions, evasions, and moments when other characters react in ways the narrator does not explain. In this way, the unreliable narrator turns reading into an act of detection. The technique also carries a moral lesson. Because readers often sympathize with the narrator before seeing his blindness, they experience firsthand how easily a sincere person can misread his own life.

124 **According to the passage, where does the power of an unreliable narrator come from?**

① The gap between the narrator's account and the truth readers gradually discover
② The use of many different narrators who contradict one another
③ The narrator's knowledge of everything that happens in the story
④ The narrator's complete honesty about his loyalty and his lost love

125 **What moral lesson does the author attribute to the technique?**

① Readers, having first shared his view, see how a sincere person can misread his own life.
② Readers discover that fascism was popular among the English upper classes of the time.
③ Readers learn that all narrators are deliberate liars who cannot be trusted to describe their own lives.
④ Readers learn that loyalty to an employer is always wrong, whatever that employer believes.

126 **The phrase "an act of detection" suggests that reading such a story requires the reader to _____.**

① identify the real author of the story behind the narrator's voice
② accept the narrator's account without question, as with most stories
③ look for clues that reveal what the narrator does not say directly
④ skip the parts that are confusing and focus only on the main plot

독해 43 · Why We Enjoy Tragedy

Why do people willingly watch plays in which good characters suffer and die? Aristotle proposed that tragedy produces catharsis, usually translated as purification or purgation of pity and fear. On one reading, watching tragedy allows audiences to release these emotions safely, leaving them calmer afterward, much as a medicine purges the body. Another reading emphasizes understanding rather than release. Tragedy shows how a person of good character can be destroyed by a mistake or a flaw, and in grasping how this happens, the audience gains insight into the fragility of human life. The pleasure of tragedy, on this view, is the pleasure of learning something true, even when it is painful. Modern psychology offers partial support for both ideas. Studies find that sad films can increase feelings of connection with others and prompt reflection on what matters in life, though they do not reliably reduce negative emotion. If so, the understanding interpretation may fit the evidence better than the idea of a simple emotional release.

127 **Why does the author suggest that the "understanding" interpretation may fit the evidence better?**

① Sad films prompt reflection but, contrary to the release theory, do not reliably reduce negative emotion.

② Modern audiences no longer watch tragedies, so only studies of sad films are available.

③ Aristotle clearly preferred the understanding interpretation, as his own writings on tragedy make plain.

④ Sad films always make people calmer, which shows that emotional release does take place.

128 **According to the first interpretation, catharsis is compared to _____.**

① a journey that takes the audience to a new place

② a medicine that cleans out the body

③ a lesson about human fragility taught in school

④ a detective gradually solving a difficult crime

129 **What is the source of pleasure in tragedy according to the second interpretation?**

① Seeing bad characters punished for the mistakes they have made

② Gaining true insight into human life, even if it is painful

③ Escaping from reality completely for the length of the play

④ Releasing pity and fear safely, much as a medicine purges the body

독해 44 · Terror at a Safe Distance

Eighteenth-century writers distinguished between the beautiful and the sublime. The beautiful is small, smooth, and harmonious, and it pleases us gently. The sublime is vast, overwhelming, and even threatening: a towering mountain, a violent storm, the endless night sky. Edmund Burke argued that the sublime arises from a kind of terror, but only when we are not in actual danger. A storm observed from a secure shelter thrills us; the same storm experienced in a small boat simply frightens us. Immanuel Kant added a twist. Faced with something too large for our senses to grasp, we discover that our reason can still conceive of infinity, and we feel a kind of pride in a mind that exceeds nature's scale. For Kant, then, the sublime is ultimately not about the mountain but about ourselves. Both accounts agree that the experience combines discomfort and pleasure, a mixture that distinguishes it sharply from ordinary beauty.

130 **According to Burke, why does a storm seen from a shelter produce the sublime while a storm at sea does not?**

① Shelters frame storms so that they look more beautiful and harmonious.
② The sublime requires an experience of terror without real danger to the observer.
③ Storms at sea are actually less powerful than storms seen from land.
④ People on small boats are too busy to notice the storm raging around them.

131 **What is the "twist" that Kant added?**

① The sublime requires real danger rather than terror observed from safety.
② Only vast natural objects such as mountains can be sublime.
③ The sublime is really the same as the beautiful, only larger.
④ The sublime ultimately reflects our awareness of the power of our own reason.

132 **Which experience would best fit the passage's description of the sublime?**

① Listening to a pleasant, gentle song that makes you feel calm and content
② Being lost at night in a dangerous forest during a violent storm, with no shelter nearby
③ Standing safely at the edge of a vast canyon, feeling both awe and slight fear
④ Looking at a small, delicate flower blooming in a carefully tended garden

독해 45 · Almost Human

In 1970 the Japanese roboticist Masahiro Mori proposed a curious relationship between how human a robot looks and how comfortable people feel with it. As robots become more humanlike, people find them more appealing, up to a point. When a robot is almost, but not quite, human, comfort drops sharply into unease or even revulsion before rising again for figures indistinguishable from real people. Mori called this dip the uncanny valley. Several explanations have been proposed. Near-human faces may trigger an instinct to avoid sources of disease, since subtle abnormalities in appearance can signal illness. Another theory holds that the discomfort comes from conflicting cues: a face that looks human but moves mechanically leaves the brain unable to categorize it. The effect has practical consequences for animation and robotics. Designers often deliberately make characters cartoonish rather than realistic, because a clearly artificial figure is easier to like than one that strives for realism and falls slightly short.

133 **According to the "conflicting cues" theory, why do near-human robots cause discomfort?**

① They are far too obviously artificial for people to feel any sympathy for them.
② They remind people of cartoons, which seem childish next to realistic figures.
③ They look exactly like real people, which makes viewers fear being deceived.
④ Their human look and mechanical movement send contradictory signals the brain cannot classify.

134 **Why might animators choose a cartoonish style rather than a highly realistic one?**

① Because realistic animation is technically impossible with current tools
② Because cartoonish styles cost more to produce and therefore look more polished to audiences
③ Because audiences dislike all human characters, whether realistic or not
④ To avoid the unease provoked by figures that fall just short of realism

135 **Which of the following best describes the shape of the relationship Mori proposed?**

① Comfort remains the same regardless of how human a robot looks or moves.
② Comfort rises with likeness, drops sharply for nearly human figures, then rises again at full likeness.
③ Comfort decreases steadily as robots become more humanlike in face and movement.
④ Comfort increases steadily as robots become more human, until they are indistinguishable from people.

독해 46 · The Beauty of Ruins

Since the eighteenth century, Europeans have found a peculiar pleasure in ruins. Wealthy landowners even built artificial ruins, crumbling towers and broken arches designed to look ancient, in their gardens. Part of the appeal lay in melancholy: ruins remind us that even the greatest achievements decay, and that our own lives are brief. Yet ruins also stimulate imagination in a way complete buildings do not. A broken column invites the viewer to picture the temple it once supported, filling in what is missing. The ruin becomes a collaboration between the past and the observer. In recent decades, a related fascination has grown around abandoned factories, shopping malls, and entire cities, sometimes called "ruin porn" by its critics. The critics point out that, unlike ancient temples, these modern ruins often mark recent economic disasters that still affect real communities. Treating them as beautiful images, they argue, can turn people's ongoing hardship into an aesthetic spectacle for outsiders.

136 **According to the passage, how do ruins stimulate imagination?**

① Their incompleteness invites viewers to mentally reconstruct what is missing.
② They show buildings exactly as they originally stood, without any decay.
③ They contain detailed written histories of the people who built them.
④ They remind viewers that even the greatest achievements eventually decay.

137 **What distinction do critics draw between ancient ruins and modern ones?**

① Ancient ruins were all artificial, built by wealthy landowners for their gardens.
② Modern ruins are less beautiful because they lack columns and arches.
③ Modern ruins often reflect recent hardships that still affect living people.
④ Modern ruins are actually older than many of the ancient ones.

138 **The critics' concern about "ruin porn" is mainly an ethical one about _____.**

① the physical danger of entering abandoned factories and shopping malls
② aestheticizing the suffering of real communities for the enjoyment of outsiders
③ the high cost of building artificial ruins in private gardens
④ the poor quality of photographs taken by amateur visitors

독해 47 · The Anxiety of Influence

Every writer begins as a reader, absorbing the styles and visions of earlier authors. The critic Harold Bloom argued that this inheritance is not simply a gift but a burden. Strong poets, he claimed, feel threatened by the greatness of their predecessors, fearing that everything worth saying has already been said. To create something original, they must deliberately misread earlier poets, twisting their ideas to make space for their own. Bloom called this struggle the anxiety of influence. His theory reversed a common assumption that influence diminishes originality. For Bloom, originality does not come from escaping tradition but from wrestling with it: the most original poets are often those most deeply shaped by the predecessors they resist. Critics have objected that the theory describes literature as a contest among a few great men, ignoring the cooperative and communal ways in which many writers, especially those outside the traditional canon, relate to their sources.

139 **According to Bloom, how do strong poets achieve originality?**

① By avoiding reading any earlier poetry so as not to be influenced
② By copying earlier poets exactly until they master their styles
③ By struggling against and creatively misreading the great poets who came before them
④ By collaborating peacefully with other poets in a shared, communal tradition

140 **What common assumption does Bloom's theory reverse?**

① That poets read earlier poetry before they begin to write
② That being influenced by earlier writers reduces a writer's originality
③ That literature is difficult to understand without knowing tradition
④ That tradition matters far more to a poet than personal experience does

141 **What is the critics' main objection to Bloom's theory?**

① It focuses too much on women writers and those outside the traditional canon.
② It casts literary history as a contest among a few figures, ignoring cooperation among writers.
③ It claims that no poet can ever be truly original, since everything worth saying has been said.
④ It overestimates how much reading earlier authors matters to a writer's development.

독해 48 · Who Decides the Classics?

Every literature curriculum includes certain works and excludes others, and the resulting list is often called the canon. It is tempting to think that the canon simply contains the best works, selected by time for their enduring quality. Historians of literature have shown that the process is more complicated. Works survive partly because they are taught, reprinted, and discussed, and these activities depend on publishers, universities, and critics whose tastes reflect their own social position. For long periods, writing by women and by members of minority groups was rarely published or studied, regardless of its quality. Some argue that this history proves the canon is merely an expression of power. Others reply that exclusion in the past does not mean that judgments of quality are meaningless; it means that those judgments must be applied more widely and honestly. Recent decades have seen many previously ignored works enter the canon, which suggests that the list is not fixed but continually revised. The canon, in this view, is best understood as an ongoing argument about value rather than a final verdict.

142 **Why does the author say the process of forming the canon is "more complicated" than simply selecting the best works?**

① The canon is chosen at random by publishers who print whatever is cheapest.
② Old works are always better than new ones, since time has tested their quality.
③ A work's survival depends partly on institutions whose tastes reflect their social position.
④ No one reads canonical works anymore outside of university literature courses.

143 **How do some respond to the claim that the canon is "merely an expression of power"?**

① They argue that past exclusion calls for judging quality more fairly, not abandoning such judgment.
② They claim that the canon has never changed and therefore reflects lasting quality.
③ They argue that minority writers were excluded because their work lacked quality.
④ They agree that quality cannot be judged at all apart from social power.

144 **What does the author conclude about the nature of the canon?**

① It should be abolished entirely, since it merely expresses power.
② It is a fixed list of the greatest works, selected by time.
③ It contains only works by famous authors from powerful social groups.
④ It is a continuing debate about value that changes over time.

독해 49 · Singing the Epic

For centuries, scholars puzzled over how Homer's Iliad and Odyssey could have been composed before writing was widely used in Greece. How could a poet memorize tens of thousands of lines? In the 1930s, the American scholar Milman Parry traveled to Yugoslavia to study living oral poets who performed long heroic songs. He discovered that they did not memorize fixed texts. Instead, they composed during performance, using a large stock of traditional phrases that fit the rhythm of the verse, such as "swift-footed Achilles" or "rosy-fingered dawn" in Homer. These formulas allowed singers to produce verse fluently, and each performance of the same story differed in its details. Parry's discovery explained why Homer repeats phrases so often, a feature that had seemed to some readers a weakness. The repetitions were not lapses of imagination but tools of a living craft. His work transformed our understanding of the epics, revealing them as products of a long tradition of performance rather than the fixed creations of a single author working at a desk.

145 What did Parry discover about the oral poets of Yugoslavia?

① They could not perform long songs without forgetting large parts of them.
② They memorized exact texts written by earlier poets and recited them word for word.
③ They wrote their poems down in advance and read them aloud while performing.
④ They composed during performance with traditional formulas instead of reciting memorized texts.

146 How did Parry's work change the evaluation of Homer's repeated phrases?

① They were shown to have been borrowed directly from the songs of Yugoslav poets.
② They came to be seen as tools of oral composition rather than signs of weak imagination.
③ They were proved to be mistakes introduced by later copyists of the written text.
④ They were removed from modern editions as lapses that weakened the poems.

147 Why was studying living poets in the twentieth century useful for understanding ancient Greek epics?

① The Yugoslav songs turned out to be translations of Homer's epics.
② Ancient Greek was still spoken in the villages of Yugoslavia.
③ The Yugoslav poets were descendants of Homer who had preserved his exact verses for centuries.
④ A still-active oral tradition showed how long poems could be composed without writing.

독해 50 · The Silence of the Archive

Historians depend on archives, but archives are not neutral collections of the past. They contain what someone decided to record and what someone else decided to keep. Governments preserved tax records, court cases, and official correspondence, while the daily lives of peasants, enslaved people, and women often went unwritten. When such people do appear, it is frequently through the eyes of officials who were taxing, judging, or controlling them. Historians have developed methods for reading these sources "against the grain." A court record written to condemn a rebel may still reveal, in the testimony it reports, the rebel's grievances and ways of speaking. Historians also turn to other kinds of evidence, such as songs, objects, and archaeological remains, to recover lives that left few written traces. These approaches cannot fully restore what was lost. They do, however, remind us that the silence of the archive is itself historical evidence, telling us whose lives were considered worth recording.

148 What does it mean to read a source "against the grain," as illustrated in the passage?

① To ignore documents written by officials who were judging or taxing people
② To read documents in reverse order, from the latest to the earliest
③ To read only the most official documents, such as tax and court records
④ To extract information that a document's authors did not intend to convey

149 What does the author mean by saying that "the silence of the archive is itself historical evidence"?

① Archives are always quiet places where historians work undisturbed for long hours.
② Historians should ignore missing records and focus on what was actually preserved.
③ Silence was far more common in the past, since most people could not write.
④ The absence of certain records shows whose lives record keepers considered worth recording.

150 Why do historians turn to songs, objects, and archaeological remains?

① To learn about people whose lives were poorly represented in written records
② To replace archives entirely with more reliable kinds of evidence
③ Because objects are easier to read than documents written by officials
④ Because written records are always false when they describe ordinary people

독해 51 · A Trap of Rising Powers

The ancient Greek historian Thucydides explained the Peloponnesian War with a famous sentence: it was the rise of Athens and the fear this inspired in Sparta that made war inevitable. The political scientist Graham Allison has used the phrase "Thucydides trap" to describe the danger that arises when a rising power threatens to displace an established one. Examining sixteen such cases over five centuries, he found that twelve ended in war. The concept has been widely applied to relations between the United States and China. Critics have raised several objections. The selection of cases is open to dispute, since different historians might count different rivalries or classify them differently. Some argue that Thucydides himself emphasized many causes, including miscalculation and domestic politics, not merely a shift in power. Others note that nuclear weapons have changed the costs of great-power war so drastically that historical patterns may no longer apply. Allison himself insists that war is not inevitable; the four cases that avoided it, he argues, show that careful statecraft can escape the trap.

151 **Why do critics question Allison's finding that twelve of sixteen cases ended in war?**

① Most of the sixteen cases actually ended peacefully, so the true ratio is reversed.
② None of the sixteen rivalries actually involved a rising power threatening an established one.
③ Allison relied on modern simulations rather than on any historical cases of rivalry.
④ The choice and classification of cases could vary depending on the historian's judgment.

152 **How does the nuclear weapons objection challenge the Thucydides trap?**

① It argues that rising powers rarely build weapons, so the old patterns of rivalry no longer occur.
② It claims that fear of nuclear weapons, rather than Athenian growth, caused the Peloponnesian War.
③ It suggests that the unprecedented costs of modern war may make past patterns unreliable guides.
④ It proves that war between great powers is now more likely than in earlier centuries.

153 **What is Allison's own position regarding the inevitability of war?**

① Rising powers almost never threaten established ones, so the trap is largely imaginary.
② War is inevitable in such situations, as the twelve cases ending in conflict clearly demonstrate.
③ Historical cases have little relevance today because nuclear weapons have changed everything about great-power conflict.
④ War between rising and established powers is a real risk but can be avoided through skillful statecraft.

독해 52 · Nations as Imagined Communities

Members of even the smallest nation will never meet most of their fellow members, yet they feel a deep bond with them. The political scientist Benedict Anderson called nations "imagined communities," not to suggest that they are false, but to emphasize that they exist in the minds of their members. Anderson asked how such imagining became possible. Part of his answer was print capitalism. As publishers sought larger markets, they printed books and newspapers in local languages rather than Latin, creating communities of readers who shared a language and followed the same events at the same time. A person reading the morning newspaper knew that thousands of others were reading the same stories, a ritual that made an invisible community feel real. Anderson's theory challenged the view that nations are ancient and natural, existing long before states gave them political form. Critics reply that many nations drew on older ethnic and religious identities, which print did not invent but transformed. The debate concerns not whether nations are real, since they clearly shape lives, but how and when they came to be.

154 What did Anderson mean by calling nations "imagined communities"?

① Nations are false creations that do not really exist outside the propaganda of modern states.
② Nations exist as shared ideas in the minds of members who will never all meet.
③ Members of a nation feel bonded because they actually know one another personally.
④ Nations were invented by novelists and poets who wrote in local languages instead of Latin.

155 How did print capitalism contribute to national consciousness, according to Anderson?

① It allowed governments to ban newspapers that printed stories in local languages rather than Latin.
② It created large groups of readers sharing a language and experiencing the same news simultaneously.
③ It reduced the number of books available, forcing readers to rely on a single shared newspaper.
④ It forced readers across Europe to learn Latin so they could follow the same events.

156 What is the critics' main objection to Anderson's theory?

① It wrongly suggests that nations are imaginary and therefore do not shape people's lives.
② It underestimates the role of older ethnic and religious identities that print reshaped rather than created.
③ It ignores the role of newspapers and books in spreading a sense of shared membership.
④ It claims that nations are ancient and natural, existing long before states gave them form.

독해 53 · The Great Exchange

When Columbus reached the Americas in 1492, he set off an exchange of plants, animals, and microbes between two hemispheres that had been separated for millennia. Historians call this the Columbian Exchange. Potatoes and maize from the Americas transformed agriculture in Europe, Africa, and Asia, supporting rapid population growth. Horses, cattle, and wheat from Europe reshaped life in the Americas. The most devastating transfer, however, was disease. Smallpox, measles, and influenza, to which Native Americans had no immunity, killed a large majority of the indigenous population in many regions within a century. This catastrophe made European conquest far easier than military strength alone would have allowed. The exchange was strikingly uneven partly because Eurasia had domesticated many more animals, and living closely with livestock had exposed its populations to diseases that jumped from animals to humans over thousands of years. The diseases that devastated the Americas were, in a sense, a biological consequence of Eurasian agricultural history.

157 **According to the passage, why did the Columbian Exchange affect disease patterns so unevenly?**

① European diseases were milder than American ones, so the exchange of microbes flowed mostly westward.

② Eurasians had long lived among domesticated animals, gaining exposure and immunity to diseases that jumped to humans.

③ Native Americans had stronger weapons but were weakened by the crops arriving from Europe.

④ Native Americans had already been exposed to smallpox and measles through earlier contact with Asia.

158 **What role did disease play in European conquest, according to the passage?**

① It had little effect on conquest, since European military strength alone was already decisive.

② It mainly harmed European soldiers and settlers, who had no immunity to the diseases native to the Americas.

③ It was deliberately spread by all European explorers as their primary strategy of conquest.

④ It weakened indigenous societies so severely that conquest became far easier than military strength alone allowed.

159 **The final sentence suggests that _____.**

① the Americas had domesticated far more animals than Eurasia over thousands of years of farming

② the epidemics in the Americas had deep roots in long-term differences in agriculture

③ Eurasian farmers intended to spread their diseases to populations across the ocean

④ agriculture has no real connection to the spread of infectious disease among humans

독해 54 · After the Plague

Between 1347 and 1351, the Black Death killed perhaps a third or more of Europe's population. The human cost was immense, but historians have noted that the survivors, particularly laborers, often found their circumstances improved. With so many workers dead, labor became scarce while land remained plentiful. Peasants could demand higher wages or move to landlords offering better terms. Authorities tried to resist, passing laws that fixed wages at pre-plague levels and restricted workers' movement. These laws proved difficult to enforce and contributed to uprisings such as the English Peasants' Revolt of 1381. In western Europe, the old system of serfdom gradually weakened. Interestingly, in parts of eastern Europe the same labor shortage led landlords to tighten control over peasants instead. The contrast shows that a demographic shock does not determine its own consequences; the outcome depended on the relative power of landlords and peasants in each region.

160 Why did the Black Death often improve the position of surviving laborers in western Europe?

① Land became scarce after the plague, so landlords competed fiercely for the remaining tenants.
② The plague killed mostly landlords, leaving their estates in the hands of former peasants.
③ Governments raised wages by law to keep surviving laborers from moving to other regions.
④ The sudden shortage of workers increased their bargaining power relative to landowners.

161 Why does the author mention developments in eastern Europe?

① To argue that eastern European peasants grew wealthier than those in the west after the plague
② To prove that the plague never reached eastern Europe and so left serfdom there intact
③ To show that the same shock could produce opposite outcomes depending on local power relations
④ To show that serfdom ended everywhere at roughly the same time after the labor shortage

162 Which of the following statements best expresses the main lesson of the passage?

① Population changes automatically determine economic outcomes, whatever the local balance of power.
② Laws fixing wages at pre-plague levels were generally successful in preventing unrest.
③ The effects of the population loss depended on the balance of power in each region.
④ The Black Death had only positive effects for the people who survived it.

독해 55 · The Myth of Tulip Mania

Tulip mania in the Dutch Republic of the 1630s is often cited as history's first great speculative bubble. According to the familiar story, prices for single tulip bulbs rose to the value of houses, ordinary people sold everything to invest, and when the market collapsed in 1637, the Dutch economy was ruined. Much of this account comes from moralizing pamphlets written at the time and from a popular nineteenth-century book that repeated them uncritically. Historians who examined contracts and court records found a more modest picture. The extreme prices applied to a small number of rare varieties, the buyers were mostly wealthy merchants rather than ordinary people, and there is little evidence of widespread bankruptcies or economic damage. Many contracts were simply not enforced after the collapse. The Dutch economy continued to flourish in the following decades. Why did the exaggerated version survive? Perhaps because it offered a vivid moral lesson about greed, and stories that confirm our beliefs about human folly are retold more often than careful corrections.

163 **According to the passage, where did much of the exaggerated story of tulip mania come from?**

① Detailed court records and contracts examined by historians in the twentieth century
② Modern economic statistics showing widespread bankruptcies across the Dutch Republic in 1637
③ Moralizing pamphlets of the time and a later book that repeated them without checking
④ Firsthand accounts by the wealthy Dutch merchants who bought the rarest bulbs

164 **Which finding most directly contradicts the claim that tulip mania ruined the Dutch economy?**

① Tulips were popular among buyers throughout the Dutch Republic in the 1630s.
② Pamphlets of the period harshly criticized speculation as a form of greed and folly.
③ The Dutch economy continued to prosper in the decades after the collapse.
④ Some rare tulip varieties sold for prices comparable to the value of houses.

165 **What explanation does the author offer for the survival of the exaggerated story?**

① It provides a memorable moral lesson that fits what people already believe about human foolishness.
② It has been confirmed as accurate by historians who examined the contracts and court records.
③ No one has examined the original records, so the exaggerations have never been challenged.
④ It was required by law to be taught in Dutch schools as a warning against speculation.

독해 56 · Why Europe Pulled Ahead

Around 1750, the most advanced regions of China, such as the Yangtze River Delta, appear to have been roughly as prosperous as the most advanced regions of Europe. Both had dense populations, active markets, and sophisticated agriculture. Within a century, however, northwestern Europe had industrialized and surged far ahead. Explaining this "Great Divergence" is one of the central problems of economic history. Older explanations emphasized supposed European advantages in culture, science, or institutions that had developed over many centuries. The historian Kenneth Pomeranz offered a different account, stressing two fortunate circumstances. Britain had large deposits of coal located close to where they were needed, providing cheap energy, and its overseas colonies supplied food, cotton, and timber that relieved pressure on its limited land. Without these, Pomeranz argued, Europe might have faced the same ecological limits that constrained China. His thesis remains debated, but it shifted attention from long-term cultural superiority to the contingent factors of geography and empire.

166 What is distinctive about Pomeranz's explanation of the Great Divergence?

① It denies that the Great Divergence ever happened in the first place.
② It credits European science and institutions developed over many centuries.
③ It argues that China was always more advanced and prosperous than Europe.
④ It emphasizes geographic and colonial advantages rather than long-standing cultural superiority.

167 According to Pomeranz, how did overseas colonies help Britain?

① They provided resources that eased the pressure on Britain's limited land.
② They taught Britain new agricultural techniques for its densely populated countryside.
③ They bought most of Britain's industrial products, creating steady demand for its new factories.
④ They supplied the cheap coal that powered British factories during industrialization.

168 Why is the comparison of the Yangtze Delta and Europe around 1750 important for the argument?

① It proves that China industrialized first but later lost its lead to Britain.
② It indicates that both regions lacked the active markets needed for industrial growth.
③ It suggests that Europe's later advantage was not the result of a long-standing gap in prosperity.
④ It shows that Europe was considerably poorer than China in 1750 and caught up later.

독해 57 · The Protestant Ethic Revisited

In 1905 the sociologist Max Weber proposed that Protestantism, especially Calvinism, helped give rise to modern capitalism. Calvinists believed that God had already determined who would be saved, yet no one could know for certain. Weber argued that this anxiety led believers to seek signs of their salvation in disciplined work and worldly success, while their religion forbade spending wealth on luxury. The result was a habit of working hard and reinvesting profits, the very behavior capitalism requires. The thesis has been both influential and heavily criticized. Historians point out that capitalist practices flourished earlier in Catholic regions such as northern Italy. One statistical study of Prussia found that Protestant areas were indeed more prosperous, but attributed the difference to higher literacy, since Protestants were encouraged to read the Bible themselves. On this account, religion mattered, but through education rather than through a distinctive work ethic. The debate illustrates how a correlation between two things can be explained by quite different causal paths.

169 **According to Weber, how did Calvinist beliefs encourage capitalist behavior?**

① Calvinists believed that accumulated wealth itself guaranteed salvation, so they pursued profit above all other goals.

② Calvinism encouraged spending on luxury as a visible sign of God's favor.

③ Calvinists were forbidden worldly work, so they invested in trade conducted by others.

④ Uncertainty about salvation led believers to work hard and reinvest rather than spend on luxury.

170 **How does the Prussian study reinterpret the link between Protestantism and prosperity?**

① It attributes the link to higher literacy among Protestants rather than to a special work ethic.

② It confirms that the distinctive Protestant work ethic was the only cause of greater prosperity.

③ It denies that Protestant areas were more prosperous than Catholic areas in Prussia.

④ It shows that Catholic areas actually had higher literacy because priests encouraged Bible reading.

171 **The example of northern Italy is used to _____.**

① explain how Calvinism originated among Italian merchants before spreading north

② prove Weber's thesis correct by showing that capitalism followed the Reformation

③ show that northern Italy had become largely Protestant by the sixteenth century

④ challenge the idea that Protestantism was necessary for capitalism to develop

독해 58 · The Charter and Its Legend

Magna Carta, sealed by King John of England in 1215, is celebrated as a founding document of liberty, cited in the constitutions of many countries. Its original purpose was far narrower. It was a peace treaty between an unpopular king and rebellious barons, mostly concerned with feudal privileges such as inheritance rights and limits on royal taxation of the nobility. Most English people of the time, who were unfree peasants, gained little from it. Within months, the pope annulled the charter and war resumed. The document's later fame grew from reinterpretation. In the seventeenth century, lawyers opposing the claims of absolute monarchs read one clause, which promised that no free man would be imprisoned except by lawful judgment, as a general guarantee of due process. Over time, "free man" came to be understood as applying to everyone. The Magna Carta we celebrate is thus partly a creation of later generations, which shows how the meaning of a historical document can grow far beyond what its authors intended.

172 **What was the original purpose of Magna Carta, according to the passage?**

① To create a written constitution that would govern relations among European kingdoms
② To establish democracy in England by giving ordinary peasants a direct voice in royal decisions
③ To guarantee equal rights and due process to all English people, free or unfree
④ To settle a conflict between the king and the barons, mainly over noble privileges

173 **How did Magna Carta come to be seen as a guarantee of liberty for everyone?**

① Later lawyers reinterpreted one clause, and "free man" was gradually extended to everyone.
② Peasants who gained nothing from it later wrote additional clauses protecting their own rights.
③ King John intended it from the start to protect all of his subjects equally.
④ The pope expanded its meaning after annulling the original version within months.

174 **What general point does the author make in the last sentence?**

① Magna Carta has no real importance, since its celebrated meaning was invented later.
② A document's significance can grow well beyond its authors' intentions through later interpretation.
③ Historical documents should be read only according to what their original authors intended.
④ Later generations always misunderstand history and should defer to contemporary records.

독해 59 · Reading the Stone

In 1799 French soldiers in Egypt found a stone slab inscribed with the same decree in three scripts: Egyptian hieroglyphs, a cursive Egyptian script, and ancient Greek. Since scholars could read Greek, the Rosetta Stone offered a key to hieroglyphs, which no one had understood for over a thousand years. The decipherment nevertheless took more than two decades. A major obstacle was a mistaken assumption. Most scholars believed hieroglyphs were purely symbolic, each picture representing an idea rather than a sound. The French scholar Jean-François Champollion, who knew Coptic, a late form of the Egyptian language, realized that many signs represented sounds. By matching the names of rulers, enclosed in oval frames, with their Greek equivalents, he worked out the sound values of individual signs. He then discovered that the system mixed sound signs with signs for meaning, which explained why earlier attempts had failed. The story shows that even with the right evidence in hand, progress can be blocked by an assumption that no one thinks to question.

175 **Why did it take so long to decipher hieroglyphs even after the Rosetta Stone was found?**

① No scholar of the time could read the ancient Greek on the stone.
② Scholars wrongly assumed that hieroglyphs represented only ideas, not sounds.
③ The stone was too damaged for most of its inscriptions to be read.
④ The three scripts on the stone recorded entirely different texts.

176 **How did Champollion's knowledge of Coptic help him?**

① Coptic was itself written in hieroglyphs, so he could read the stone directly.
② Knowing a later form of Egyptian helped him recognize that many signs stood for sounds.
③ It convinced him that hieroglyphs were purely symbolic pictures that carried no sound values at all.
④ It allowed him to read the Greek section, which other scholars had misunderstood.

177 **What general lesson does the author draw from the story?**

① Evidence alone is never sufficient for discovery without a lucky accident.
② Soldiers who find evidence contribute more to research than trained scholars.
③ Unexamined assumptions can prevent progress even when the necessary evidence is available.
④ Ancient writing systems cannot be understood without a bilingual inscription.

독해 60 · Blessing or Trap?

The adoption of agriculture about ten thousand years ago is usually presented as a great leap forward for humanity. Farming produced food surpluses, which supported cities, writing, and specialized professions. Yet archaeological evidence complicates this picture. Skeletons of early farmers often show signs of poorer health than those of the hunter-gatherers who preceded them: shorter stature, more tooth decay, and more evidence of nutritional stress and infectious disease. Diets based on a few crops were less varied, and dense settlements near livestock allowed diseases to spread. Why, then, did people adopt farming? One answer is that the choice was never made all at once. Each small step, such as tending wild plants more carefully, offered immediate benefits, and as populations grew to depend on the extra food, returning to foraging became impossible. Agriculture benefited populations as a whole by allowing more people to live, even if the average individual lived a harder life.

178 What does the skeletal evidence suggest about early farmers?

① They ate a more varied diet than the foragers who came before them.
② They were taller and healthier than hunter-gatherers thanks to food surpluses.
③ They suffered fewer infectious diseases because they lived apart from wild animals.
④ Their health was often worse than that of the hunter-gatherers before them.

179 According to the passage, why did people continue farming despite its disadvantages?

① Governments in the earliest cities forced hunter-gatherers to farm in order to collect more taxes.
② Farming was more enjoyable than hunting and required far less daily effort.
③ Each small step brought immediate benefits, and growing populations came to depend on farming.
④ Farming immediately improved everyone's health by providing a more reliable food supply.

180 The final sentence draws a distinction between _____.

① the plants that early farmers grew and the animals they domesticated
② farmers who lived in villages and dwellers in the first cities
③ ancient diseases spread by livestock and modern diseases spread in cities
④ a population's overall size and a typical individual's quality of life

독해 61 · Is Willpower a Fuel?

In the late 1990s, psychologists proposed that self-control draws on a limited resource, like a muscle that tires with use. In a famous experiment, people who resisted eating cookies and ate radishes instead gave up sooner on a difficult puzzle than those who had been allowed to eat the cookies. This "ego depletion" effect was replicated in hundreds of studies and became a popular explanation for why people break diets late in the day. In 2016, however, a large coordinated project involving more than twenty laboratories tested the effect using a standardized procedure. The result was close to zero. Researchers have since debated why so many earlier studies seemed to support the effect. One possibility is publication bias, the tendency of journals to publish positive findings while studies that found nothing went unpublished. Another is that the effect depends on people's beliefs: those who think willpower is limited seem more likely to show depletion than those who think it is not. If so, the theory may have partly created the phenomenon it described.

181 Why was the 2016 project especially significant?

① It used cookies instead of radishes, reversing the design of the original experiment.
② It was the first study of self-control ever to be conducted outside a single university laboratory.
③ It confirmed that ego depletion is strong enough to explain why people break diets.
④ It tested the effect in many laboratories with one procedure and found almost no effect.

182 What does the final sentence suggest?

① Believing that willpower runs out may itself cause people to give up sooner.
② The theory of ego depletion is completely correct and has been confirmed by every study.
③ People should eat cookies before solving puzzles to keep their willpower from running out.
④ Willpower is a physical muscle that tires with use regardless of what people believe.

183 Which explanation for the early positive findings involves the publishing process?

① Self-control works like a muscle that tires with repeated use.
② The researchers used radishes, which participants found unpleasant.
③ Participants who believed willpower was limited showed stronger depletion.
④ Journals favored studies that found an effect, while null results remained unpublished.

독해 62 · Mindsets and Their Measured Effects

The psychologist Carol Dweck distinguished between a fixed mindset, the belief that intelligence is an unchangeable trait, and a growth mindset, the belief that it can be developed through effort. Students with a growth mindset, her research suggested, respond to failure by working harder rather than giving up. The idea spread rapidly through schools, where teachers were encouraged to praise effort rather than talent. Large studies conducted later reported more modest results. A brief online mindset intervention given to thousands of students produced a small average improvement in grades, concentrated mainly among lower-achieving students. Some reviews found even weaker effects. Defenders note that a small effect from a cheap, brief intervention can still be valuable when applied to many students. Dweck herself has criticized simplified versions of her idea, such as praising effort that does not lead to learning or simply telling students to "try harder." The episode suggests that a sound psychological insight can lose much of its value when it becomes a slogan.

184 How do defenders justify the value of mindset interventions despite their small effects?

① The effects are actually very large once researchers measure grades over several years.
② The interventions help high-achieving students most, and those students influence their classmates.
③ A small benefit from an inexpensive, short program can add up when many students receive it.
④ Small effects are meaningless in individual studies, but large reviews always reveal hidden benefits.

185 What does Dweck criticize, according to the passage?

① All forms of praise in schools, including praise for effort and for talent
② Large-scale studies of her theory that reported only modest effects on grades
③ Oversimplified applications that praise effort without regard to whether learning actually occurs
④ Her own original research, which she now believes overstated the role of effort

186 Which group benefited most from the online intervention?

① Teachers rather than students, since they learned to praise effort
② Students who were performing less well academically
③ Students who already held a growth mindset before the program
④ The highest-achieving students in each participating school

독해 63 · The Marshmallow Test Revisited

In the 1960s and 1970s, researchers at Stanford offered young children a choice: one marshmallow now, or two if they could wait alone for about fifteen minutes. Follow-up studies years later reported that children who waited longer had better test scores and other positive outcomes as adolescents. The finding became a celebrated demonstration of the importance of self-control. A larger and more diverse study published in 2018 revisited the question. It found that the link between waiting and later achievement was much weaker than originally reported, and it shrank further once family income and early cognitive ability were taken into account. Other research suggested that waiting partly reflects how much children trust adults to keep promises. In one experiment, children who had just experienced an unreliable adult waited far less than those who had experienced a reliable one. For a child whose environment is unpredictable, taking the treat immediately may be a rational choice rather than a failure of willpower. The test may therefore measure circumstances as much as character.

187 **What happened to the link between waiting and later achievement when family income was taken into account?**

① It became even weaker, suggesting that background factors explained part of the original association.
② It showed that family income has no measurable effect on how long young children wait.
③ It disappeared completely, proving that self-control plays no role in later achievement.
④ It became much stronger, showing that self-control matters most in poorer families.

188 **Why might taking the treat immediately be a "rational choice" for some children?**

① The second marshmallow is often smaller, so waiting fifteen minutes offers little real benefit to young children.
② If adults often break promises, waiting for a reward that may never come is unwise.
③ Marshmallows are healthier when eaten quickly, before they have been handled by adults.
④ These children are less intelligent and cannot understand the rules of the test.

189 **What does the final sentence suggest about the marshmallow test?**

① The test measures only intelligence, not self-control or character.
② The test is a perfect measure of character regardless of a child's background.
③ Children's waiting may reflect their life circumstances as well as their self-control.
④ Children should never be tested because their behavior changes with age.

독해 64 · Remembering What Never Happened

Memory does not work like a video recording. Each time we recall an event, we reconstruct it, and in the process details can be added, lost, or changed. The psychologist Elizabeth Loftus showed how easily this can happen. In one study, people watched a film of a car accident and were asked how fast the cars were going when they "smashed" or when they "hit" each other. Those who heard "smashed" gave higher speed estimates and, a week later, were more likely to report seeing broken glass, although there was none in the film. In later studies, Loftus and her colleagues implanted entirely false childhood memories, such as being lost in a shopping mall, in a substantial minority of participants. These findings have serious implications for the legal system. Eyewitness testimony, which juries often find highly persuasive, can be shaped by the wording of police questions or by information encountered after the event. Confidence is no guarantee of accuracy: a witness can be completely sure of a memory that is false.

190 What does the "smashed" versus "hit" study demonstrate?

① Memory works like a video recording that faithfully stores every detail of an event.
② Films of car accidents always show broken glass when the collision is severe enough.
③ People are skilled at estimating speed no matter how a question is phrased.
④ The wording of a question asked after an event can alter later memories of it.

191 Based on the passage, which police practice would most reduce the risk of distorted eyewitness memory?

① Asking open, neutral questions that do not suggest particular details
② Relying mainly on how confident a witness feels about the memory
③ Using vivid, emotionally charged words such as "smashed" in questions
④ Telling witnesses what other witnesses saw so their accounts agree

192 What is the point of the final sentence?

① Confident witnesses are usually lying and should therefore be treated with great suspicion by juries.
② Juries should ignore all eyewitness testimony, since memories are reconstructed each time.
③ False memories are always held with little confidence, unlike memories of real events.
④ A witness's certainty should not be taken as proof that the memory is accurate.

독해 65 · Changing Our Minds to Fit Our Actions

In a classic 1959 experiment, participants performed a boring task and were then paid either one dollar or twenty dollars to tell the next participant that it was interesting. Later, when asked how much they had actually enjoyed the task, those paid one dollar rated it as more enjoyable than those paid twenty. The psychologist Leon Festinger explained the result with the theory of cognitive dissonance. Holding two inconsistent thoughts, such as "the task was boring" and "I told someone it was fun," creates discomfort that people are motivated to reduce. Those paid twenty dollars had a sufficient justification for lying: they did it for the money. Those paid only one dollar lacked such a justification, so they resolved the conflict by changing their belief about the task. Dissonance theory helps explain why people who make great sacrifices for a cause often become its most devoted supporters. Having paid a high price, they find it difficult to admit that the cause might not be worth it. The theory suggests that our beliefs are shaped not only by evidence but also by the need to see our own actions as sensible.

193 **Why did participants paid one dollar rate the task as more enjoyable?**

① They hoped that praising the task would lead the experimenters to pay them more money.
② They misunderstood the instructions and thought they were rating the next participant's task.
③ Lacking a strong external reason for lying, they convinced themselves the task was enjoyable.
④ The task they performed was actually more interesting than the one given to others.

194 **Which situation best illustrates the explanation given for devoted supporters?**

① A student studies hard because the exam is tomorrow and failure would be costly.
② An employee works harder after receiving a raise that rewards her earlier effort.
③ A member who endured a difficult initiation into a club becomes especially loyal to it.
④ A fan stops supporting a team after it loses several important games in a row.

195 **What does the final sentence suggest about how beliefs are formed?**

① Beliefs are formed only from objective evidence gathered through careful observation.
② People never change their beliefs once they have stated them publicly.
③ Actions have no effect on beliefs, although beliefs strongly shape what people later do.
④ People adjust their beliefs partly to justify what they have already done.

독해 66 · The Treadmill of Happiness

A promotion, a new car, or a larger house usually produces a burst of happiness. Within months, however, the feeling tends to fade as people grow accustomed to their new circumstances. Psychologists call this hedonic adaptation, and some have compared it to a treadmill: we keep running toward greater satisfaction but remain in roughly the same place. Adaptation also works in the other direction, helping people recover from many misfortunes more fully than they expect. Adaptation is not complete for every kind of change, however. Long-term studies show that people often do not fully return to their earlier level of well-being after unemployment or the loss of a spouse. Some changes also resist adaptation because they keep providing variety, such as time spent with friends or new experiences, rather than a fixed state, such as a bigger house. This suggests a practical strategy. Spending on experiences and relationships may yield longer-lasting satisfaction than spending on possessions, which quickly become part of the unnoticed background of life.

196 What does the treadmill metaphor suggest?

① Regular exercise is the most reliable way to maintain happiness over a lifetime.
② Happiness increases steadily over a lifetime as people acquire more possessions.
③ People never feel even briefly happier after good events such as a promotion or new car.
④ People keep striving for more satisfaction, but adaptation keeps their happiness at a similar level.

197 Why might experiences resist adaptation more than possessions do?

① Possessions disappear quickly, so people must keep buying new ones in order to stay satisfied.
② Experiences are always cheaper than possessions, leaving more money for other pleasures.
③ People cannot remember experiences clearly, so they never grow accustomed to them.
④ Experiences offer ongoing variety, while possessions become a fixed, unnoticed part of life.

198 Which statement about adaptation is supported by the passage?

① People adapt to many changes, but some major losses can have lasting effects on well-being.
② People fully adapt to every change, good or bad, within a few months.
③ Unemployment has no long-term effect on happiness once a new job is found.
④ Adaptation applies only to positive events, so misfortunes are felt permanently.

독해 67 · Getting Smarter, or Thinking Differently?

Throughout the twentieth century, average scores on intelligence tests rose by about three points per decade in many countries. This is known as the Flynn effect, after the researcher James Flynn who documented it. The gains are too rapid to be explained by genetic change. Proposed causes include better nutrition, more years of schooling, smaller families, and an environment filled with complex information. Flynn himself noticed something revealing about where the gains occurred. Scores rose most on tests of abstract reasoning, such as finding patterns in shapes or classifying concepts, and much less on tests of vocabulary and arithmetic. He argued that modern people are not simply smarter than their grandparents but have learned to think in different ways, treating hypothetical and abstract categories as natural. Asked what a dog and a rabbit have in common, a farmer of a century ago might answer that dogs hunt rabbits, while a modern student answers that both are mammals. Recently, the rise has slowed or even reversed in some developed countries, a change researchers are still trying to explain.

199 Why can't genetic change explain the Flynn effect?

① Genes have no influence at all on intelligence or on test performance.
② Intelligence tests were not widely used until the final decades of the twentieth century.
③ The effect occurred in only one country, where schooling expanded rapidly.
④ The scores rose too quickly for genetic change to account for it.

200 What does the example of the dog and the rabbit illustrate?

① Modern people classify by abstract categories, whereas people in the past focused on practical relationships.
② Dogs and rabbits are not both mammals, so the farmer's answer was more accurate.
③ Modern students are less intelligent than farmers because they lack practical knowledge.
④ Farmers of a century ago knew far more about animals and hunting than modern students do.

201 According to Flynn, what do the patterns of score increases suggest?

① Tests have become easier to cheat on as test-taking became more common.
② Arithmetic skills have roughly doubled over the course of the twentieth century.
③ People's ways of thinking have changed, rather than their overall intelligence simply increasing.
④ Vocabulary has improved more than abstract reasoning in most developed countries.

독해 68 · Familiarity Breeds Liking

People tend to develop a preference for things simply because they have encountered them before. In experiments by the psychologist Robert Zajonc, participants shown unfamiliar Chinese characters or faces several times later rated them more favorably than ones they had seen only once or not at all. Remarkably, the effect occurred even when the images were flashed too quickly to be consciously recognized. This mere exposure effect helps explain why songs often grow on us after repeated listening and why advertisers repeat the same messages. One explanation is that familiar things are processed more easily, and the brain mistakes this ease for a sign that something is good or safe. From an evolutionary perspective, things encountered repeatedly without harm were probably not dangerous. The effect has limits. Exposure increases liking most for things that are initially neutral; repeated exposure to something people already dislike can strengthen the dislike, and excessive repetition can lead to boredom. Familiarity, then, is a powerful but not unlimited source of attraction.

202 **Why is it significant that the effect occurred even when images were shown too quickly to be consciously recognized?**

① It proves that people prefer images flashed quickly to ones shown for longer.
② It indicates that Chinese characters are easier to recognize than human faces.
③ It shows that increased liking does not depend on people consciously remembering the earlier exposure.
④ It shows that the experiment was poorly designed, since participants could not actually see the images.

203 **According to the passage, when is repeated exposure least likely to increase liking?**

① When the images are shown several times over a short period
② When people already dislike the thing they are exposed to
③ When a song is heard repeatedly over several weeks
④ When the thing is initially neutral to the viewer

204 **Which strategy would an advertiser most reasonably adopt based on the passage?**

① Repeating an ad that viewers already dislike as often as possible
② Repeating a neutral brand image moderately rather than excessively
③ Showing an ad only once so viewers do not grow bored
④ Avoiding any repetition, since familiarity breeds boredom

독해 69 · Defending Choices We Never Made

In a striking experiment, researchers showed participants pairs of photographs of faces and asked them to choose which person they found more attractive. Immediately afterward, the experimenter handed them the chosen photo and asked them to explain their choice. On some trials, however, the experimenter secretly swapped the photos, giving participants the face they had rejected. Most participants did not notice the switch. More remarkably, they went on to explain why they had chosen a face they had in fact rejected, sometimes citing features, such as earrings, that appeared only in the substituted photo. Researchers call this phenomenon choice blindness. Similar results have been found with tastes of jam and even with political opinions on surveys. The findings suggest that the reasons we give for our choices are often constructed after the fact rather than reports of what actually guided the decision. We may know what we chose far less reliably than we believe, and our explanations may be stories we tell to make sense of ourselves.

205 **Why is it especially revealing that participants cited earrings visible only in the substituted photo?**

① It proves that earrings make faces more attractive to most people who view them.
② Their explanations came from the photo in front of them, not from their original reasons.
③ It shows that participants noticed the switch but chose not to mention it.
④ It indicates that the experimenter made an error by handing back the wrong photo.

206 **What is the main implication of choice blindness?**

① People always know exactly why they make choices, even when the options are swapped.
② The reasons people give for decisions may be invented afterward rather than reflecting true causes.
③ Survey answers about political opinions are always accurate reflections of people's views.
④ People cannot reliably make choices about faces, although they can do so about tastes and political opinions.

207 **The results with political opinions on surveys suggest that _____.**

① choice blindness is not limited to trivial preferences like faces or jam
② people always notice when their own written survey answers have been secretly changed
③ surveys are never a useful way to measure what people think
④ political opinions are always more carefully considered than tastes in jam

독해 70 · The Myth of Multitasking

Many people believe they can handle several tasks at once, answering messages while listening to a lecture or driving while talking on the phone. Research suggests that, for tasks requiring attention, the brain does not truly perform them simultaneously. Instead it switches rapidly between them, and each switch carries a cost in time and accuracy. Studies find that people who frequently multitask with media perform worse on tests of filtering out irrelevant information than people who rarely do. Heavy multitaskers often rate themselves as skilled at it, yet their performance suggests the opposite. Whether multitasking causes these weaknesses or whether people who are easily distracted are drawn to multitasking remains unclear. Some combinations do work well, particularly when one activity is highly automatic, such as walking while talking. The trouble arises when two tasks compete for the same mental resources, as reading and listening to speech both do. For work that demands careful thought, the evidence favors doing one thing at a time.

208 **Why does the author say the direction of cause between multitasking and weak filtering "remains unclear"?**

① Easily distracted people may be drawn to multitasking, rather than multitasking causing distraction.
② Heavy multitaskers rate themselves accurately, so their scores must reflect the tests.
③ No studies have yet directly compared heavy multitaskers with people who rarely multitask.
④ Multitasking always improves attention once people have practiced it long enough.

209 **Which combination of activities would the passage suggest is LEAST problematic?**

① Reading a textbook while listening to a podcast
② Listening to a lecture while reading messages
③ Writing an essay while texting friends
④ Walking while having a conversation

210 **What does the gap between heavy multitaskers' self-ratings and their performance suggest?**

① Performance tests are unreliable measures of real-world skill.
② Heavy multitaskers are more skilled than others at switching.
③ Self-ratings are always accurate guides to performance.
④ People may overestimate their ability to multitask.

독해 71 · The Poverty of the Stimulus

Children acquire the grammar of their native language with remarkable speed and accuracy, usually without any formal instruction. The linguist Noam Chomsky argued that the language children hear is too limited and messy to explain what they come to know. Children rarely hear examples of certain complex structures, and they are almost never corrected for grammatical errors, yet they reliably avoid mistakes that would seem natural if they were simply generalizing from what they had heard. This "poverty of the stimulus," Chomsky concluded, shows that humans must be born with an innate universal grammar that constrains the forms languages can take. The argument has been enormously influential, but it has also been challenged. Critics point out that children hear millions of words in their early years and are highly skilled at detecting statistical patterns in what they hear. Computer models trained on large amounts of language have learned some of the structures once thought to require innate knowledge. Defenders reply that such models require far more data than any child receives. The debate thus turns on an empirical question: how much can be learned from the input children actually receive?

211 What is the core claim of the poverty of the stimulus argument?

① Children's input is too limited to explain their grammatical knowledge, so some must be innate.
② Grammar cannot be learned at all, so children rely entirely on memorizing sentences.
③ Children learn grammar mainly through frequent correction of their errors by parents.
④ Children hear far too much language to process, so they must filter out most of it.

212 How do defenders of Chomsky respond to the success of computer models?

① Children actually hear more language than computer models are trained on in total.
② The models need far more data than children receive, so they cannot explain children's learning.
③ The models are useless, since computers cannot detect statistical patterns in language.
④ They now agree that grammar is learned entirely from data rather than innate knowledge.

213 According to the last sentence, what will ultimately decide the debate?

① The total number of distinct languages and grammars that are spoken around the world today
② Evidence about how much can be learned from the actual input children receive
③ The opinions of the most famous linguists who first proposed the theory
④ Whether computer models can eventually speak as fluently as human children

독해 72 · Is There a Critical Period for Language?

Young children who move to a new country typically come to speak its language with a native accent, while adults who arrive at the same time often retain a foreign accent for life. This observation supports the idea of a critical period, a window in early life during which language is acquired most easily. A large study of nearly seven hundred thousand English learners estimated that the ability to master grammar remains strong until about age seventeen and declines afterward. Interpreting such findings is not simple. Children and adults learn in very different circumstances. Children are immersed in the language at school and with friends, while adults often continue to use their first language at home and work. Adults also tend to be judged against native speakers, while children are compared with other children. Interestingly, adults often learn faster than children at first, especially in grammar and vocabulary, and it is only over the long term that children pull ahead. Age clearly matters, but how much of its effect is biological and how much reflects differences in exposure remains an open question.

214 **Why is it difficult to attribute children's long-term advantage solely to biology?**

① The large study included only children, so adult learners were never measured.
② Adults rarely attempt to learn new languages after they move abroad.
③ Children usually receive much more immersion in the new language than adults do.
④ Children are always more intelligent than adults when it comes to learning grammar and vocabulary.

215 **Which finding complicates the simple claim that "children learn languages faster than adults"?**

① Adults often make faster progress than children in the early stages of learning.
② Children who move abroad typically develop a native accent in the new language.
③ Adults who arrive at the same time often retain a foreign accent for life.
④ The ability to master grammar declines after about the age of seventeen.

216 **What is the author's conclusion about the critical period?**

① Biology fully explains the effect, since children pull ahead in the long term.
② Age has a real effect, but the roles of biology and exposure are not yet settled.
③ The critical period ends at about age five, well before formal schooling begins.
④ Age has no real effect on language learning once exposure is taken into account.

독해 73 · Languages Born from Contact

When people who share no common language must communicate regularly, for example on plantations or in trading ports, they often develop a pidgin. A pidgin is a simplified language with a limited vocabulary, usually drawn largely from one dominant language, and little grammatical structure. It is nobody's first language and serves basic practical needs. Something remarkable can happen when children grow up hearing a pidgin. Within a generation or two, the pidgin can develop into a creole, a full language with consistent grammar, including markers of tense, complex sentences, and the ability to express anything its speakers need. Some linguists have argued that creoles around the world share grammatical features even when they arose from very different source languages. If so, children may bring certain grammatical tendencies of their own to the task of learning language. Others argue that the similarities reflect shared source languages or common social conditions. Either way, creoles demonstrate that new languages are not merely broken versions of old ones but full systems created by their speakers.

217 What is the key difference between a pidgin and a creole?

① A pidgin develops from a creole when adults simplify it for trade and plantation work.
② A creole is a full native language, while a pidgin is a simplified contact language.
③ A pidgin has more complex grammar than a creole because it combines several source languages.
④ A creole is spoken only by adults, while a pidgin is the first language of children.

218 Why would grammatical similarities among unrelated creoles be significant?

① They prove that all creoles ultimately come from English or another European language.
② They show that creoles are not real languages but variations of a single pidgin.
③ They might suggest that children contribute built-in grammatical tendencies when they create a language.
④ They indicate that adults invented creoles deliberately to simplify trade across regions.

219 What is the author's view of creoles in the final sentence?

① They should eventually be replaced by the standard languages they came from.
② They are broken versions of European languages used mainly for trade.
③ They are complete linguistic systems, not defective forms of older languages.
④ They have little grammar beyond what their source languages provided.

독해 74 · When a Language Dies

Of the roughly seven thousand languages spoken today, linguists estimate that up to half may disappear by the end of this century. Languages usually die not through the death of their speakers but through a gradual shift, as parents stop passing them on to children in favor of a more widely used language that promises economic opportunity. Once a language is no longer learned by children, its survival is in serious danger. Why should the loss matter? Each language encodes knowledge accumulated over generations, including names for local plants and animals, ways of describing relationships, and oral histories that exist nowhere else. For linguists, each language is also evidence about the range of possible human grammars. For speakers, a language is often tied to identity and community. Revival is difficult but not impossible. Hebrew was revived as an everyday spoken language in the late nineteenth and twentieth centuries, and programs in which children are taught entirely in an endangered language have helped revitalize others, such as Māori in New Zealand.

220 **According to the passage, what is the most common way languages disappear?**

① Governments ban them by law in order to promote a single official national language.
② All of their remaining speakers die in wars, epidemics, or natural disasters.
③ Linguists stop studying them, so their grammars are never recorded or taught.
④ Parents gradually stop teaching them to children, choosing a more economically useful language.

221 **Why does the author mention Hebrew and Māori?**

① To show that efforts to revive endangered languages can succeed
② To show that these languages were never truly endangered in the first place
③ To argue that revival is impossible once children stop learning a language
④ To prove that all endangered languages will eventually survive

222 **Which of the following is NOT given as a reason why the loss of a language matters?**

① Languages are connected to speakers' identity and community.
② Languages contain unique knowledge about local environments.
③ Languages provide evidence about the possible range of human grammar.
④ Every language is equally easy to learn.

독해 75 · Rules and Realities of Usage

Many people were taught that sentences should never end with a preposition and that infinitives should never be split, as in "to boldly go." Linguists point out that these rules were invented by eighteenth- and nineteenth-century grammarians, partly by imitating Latin, in which such constructions are impossible. Skilled English writers had been ending sentences with prepositions for centuries. This contrast reflects two approaches to language. Prescriptivism tells people how they ought to speak and write, while descriptivism describes how people actually do. Linguists, as scientists, are mainly descriptivists, treating all varieties of a language as systematic and rule-governed. Yet this does not mean that anything goes in every situation. Standard written forms allow people from different regions to communicate clearly in formal contexts, and knowing them can matter for education and employment. The useful distinction is between conventions that aid clarity and arbitrary rules whose main function is to mark some speakers as superior to others.

223 **According to linguists, where did the rule against ending sentences with prepositions come from?**

① Shakespeare and other great English writers who carefully avoided such constructions in their work

② Ancient English texts composed centuries before Latin began to influence English grammar

③ Grammarians who modeled English partly on Latin, where such constructions are impossible

④ Modern linguists who describe how educated speakers actually write

224 **What is the difference between prescriptivism and descriptivism?**

① Descriptivism applies only to written language, while prescriptivism covers speech.

② Prescriptivism states how language should be used; descriptivism records how it is actually used.

③ Prescriptivism describes actual usage, while descriptivism gives rules for correct usage.

④ Both approaches tell people how they should speak, but with different standards.

225 **What distinction does the author consider most useful?**

① Between constructions borrowed from Latin and those natural to English

② Between conventions that aid clarity and rules that mainly rank speakers socially

③ Between spoken English and the standard written forms used in formal contexts today

④ Between old words inherited from Latin and new words coined by speakers

독해 76 · Testing as Learning

Most students think of tests as a way to measure learning, not as a way to produce it. Research suggests otherwise. In a typical experiment, students read a passage and then either reread it several times or took practice tests in which they tried to recall its content. On a test a few minutes later, the rereading group did slightly better. On a test a week later, however, the practice-test group remembered far more. This testing effect, also called retrieval practice, appears to work because the effort of pulling information out of memory strengthens it more than passively taking it in again. The finding has an uncomfortable implication: the strategies that feel most effective are often not. Rereading creates a sense of familiarity that students mistake for mastery, while struggling to recall information feels difficult and therefore unproductive. Students who want lasting knowledge would do well to close the book and test themselves, especially when it feels hard.

226 **Why is the timing of the tests in the experiment important?**

① The practice-test group did better only on the immediate test given a few minutes later.
② Both groups performed equally well on the immediate test and on the delayed test.
③ Retrieval practice showed its advantage only on the delayed test, revealing its long-term value.
④ Rereading produced better results on both tests, though the gap narrowed over time.

227 **According to the passage, why do students often prefer rereading?**

① It has been proven to be the most effective method for long-term retention.
② It produces a feeling of familiarity that they mistake for real understanding.
③ Teachers require it because it is easier to supervise in class.
④ It requires more effort than testing, which makes it feel productive.

228 **Which study method best applies the findings of the passage?**

① Highlighting the key sentences of the textbook in several different colors
② Covering one's notes and trying to write down everything one remembers, then checking
③ Listening to a recorded lecture again while relaxing after class
④ Reading the chapter five times in a row until it feels familiar

독해 77 · Spreading Out Practice

Imagine two students preparing for an exam with the same total study time. One studies for six hours the night before; the other studies for one hour on each of six days. Over a century of research shows that the second student will typically remember much more, especially weeks or months later. This is the spacing effect. One explanation is that when we return to material after some forgetting has occurred, the effort of reconstructing it strengthens the memory. Cramming, by contrast, keeps information active only briefly, so it feels effective during the session but fades quickly. The ideal gap between sessions depends on how long one needs to remember the material: the longer the retention needed, the longer the gaps should generally be. Despite the strength of the evidence, schools rarely organize learning around spacing. Textbook chapters typically present a topic, practice it intensively, and move on, rarely returning to earlier material until the final exam.

229 **According to the passage, why does spaced study improve memory?**

① It allows students to study for more total hours without growing tired.
② It makes the material feel more familiar during each single study session.
③ Returning after some forgetting requires effort to reconstruct the material, which strengthens memory.
④ It prevents any forgetting from occurring between one study session and the next one.

230 **Based on the passage, how should a student who must remember material for a year-end exam plan review sessions?**

① Avoid reviewing earlier chapters so that new material gets full attention.
② Review everything intensively only on the night before the exam.
③ Review the material many times in a single long session.
④ Spread reviews out with relatively long gaps over many months.

231 **What criticism of typical textbooks does the passage imply?**

① They contain too many review sections, which take time away from learning new topics.
② They test students too often, causing anxiety that interferes with long-term memory.
③ They spread topics too evenly over time, so students never master any one of them.
④ They practice each topic intensively once and rarely revisit it, missing the benefit of spacing.

독해 78 · Difficulties That Help

The psychologist Robert Bjork coined the term "desirable difficulties" for learning conditions that slow down initial progress but improve long-term retention. Spacing and self-testing are two examples; another is interleaving, mixing different kinds of problems within a practice session rather than practicing one type at a time. A student practicing math might solve twenty problems on finding the volume of one shape, then twenty on another. Alternatively, she might solve the problems in a mixed order. The mixed order feels harder and produces more errors during practice. On a later test, however, students who practiced in mixed order typically perform much better. The reason is that blocked practice tells students which method to use before each problem, so they never learn to recognize which method a problem requires. On a real exam, of course, problems do not arrive labeled. Not all difficulties are desirable, however: a difficulty helps only if the learner can eventually overcome it, and material that is simply too hard produces confusion rather than learning.

232 **According to the passage, why does interleaved practice lead to better test performance?**

① It forces students to identify which method each problem requires, as real exams do.
② It allows students to make fewer errors during practice, which builds their confidence.
③ It is easier than blocked practice because students do not have to repeat the same method.
④ It requires less total practice time, leaving more time for reviewing difficult material.

233 **What condition must a difficulty meet to be "desirable," according to the passage?**

① It must be as hard as the learner can tolerate.
② It must produce no errors during practice.
③ The learner must be able to overcome it eventually.
④ It must make learning faster at the start.

234 **The sentence "problems do not arrive labeled" supports which point?**

① Students should practice only one type of problem at a time until they master it.
② Exams should include labels so that students know which method each problem needs.
③ Real exams are easier than practice because problems appear in a mixed order.
④ Practice that tells students the method in advance does not prepare them for real tests.

독해 79 · The Learning Styles Myth

A popular belief holds that each person has a preferred learning style, such as visual, auditory, or kinesthetic, and learns best when teaching matches that style. Surveys find that a large majority of teachers accept this idea. Testing it properly requires a specific design. Students must be classified by style and then randomly taught either in a matching or a mismatching way. If the theory is correct, visual learners should do better with visual teaching and auditory learners with auditory teaching. Reviews of studies using this design have found little or no such pattern. People do have preferences, and they may believe they learn better one way, but matching instruction to those preferences does not improve outcomes. What matters more is matching the method to the content: maps are best learned visually and pronunciation through listening, for everyone. The persistence of the myth shows how an intuitive and flattering idea can survive despite evidence against it.

235 **Why is random assignment to matching or mismatching teaching necessary to test the theory?**

① It allows teachers to choose their favorite method for each group of students.

② Only comparing the same type of learner under both conditions shows that matching itself helps.

③ It makes the study shorter because fewer students need to be classified by style.

④ It ensures that all students are taught visually, which is the most effective style.

236 **According to the passage, what should guide the choice of teaching method?**

① Each student's preferred learning style

② The teacher's personal preference and training

③ The nature of the material being taught

④ The age and grade level of the students

237 **Which statement would the author most likely agree with?**

① Visual learners learn best from pictures, while auditory learners learn best from listening.

② Learning styles do not exist even as personal preferences, so students' beliefs about them are simply mistaken.

③ Students may genuinely prefer certain styles, but matching lessons to them does not improve learning.

④ Teachers should test each student's learning style before planning lessons for the class.

독해 80 · Learning to Read

Unlike speech, which children acquire naturally, reading is a recent cultural invention that must be taught. For decades, educators argued over how. Advocates of phonics emphasized teaching the relationships between letters and sounds so that children could decode unfamiliar words. Advocates of "whole language" argued that children learn to read best by being immersed in meaningful texts, guessing words from context and pictures, much as they learned to speak. The scientific evidence has come down clearly on one side. Studies of reading development and brain imaging show that skilled readers do process the letters of words, and that systematic phonics instruction improves reading outcomes, especially for children at risk of difficulty. Guessing from pictures can leave weaker readers without a strategy when texts become harder and pictures disappear. This does not mean that meaning and rich literature are unimportant; decoding is necessary but not sufficient for comprehension. Effective programs combine explicit phonics with vocabulary, background knowledge, and plenty of engaging reading.

238 **Why does the author contrast reading with speech in the first sentence?**

① To argue that speech, like reading, must be formally taught to children in schools
② To prove that most children cannot learn to read without the help of pictures
③ To show that reading is older than speech as a human ability
④ To suggest that reading cannot be acquired through exposure alone and must be explicitly taught

239 **What weakness of the "whole language" approach does the passage identify?**

① Children who guess from pictures may struggle when harder texts lack pictures.
② It relies too heavily on explicit phonics instead of meaningful texts.
③ It is too expensive for most schools, which cannot afford engaging books for every child.
④ It ignores the meaning of texts by focusing on individual letters.

240 **What does "decoding is necessary but not sufficient for comprehension" mean?**

① Comprehension is impossible without pictures, even for children who can decode well.
② Phonics alone is enough for good reading once children can sound out words.
③ Sounding out words is needed for understanding texts but does not by itself guarantee it.
④ Decoding is unnecessary for skilled reading, since experienced readers recognize whole words at a single glance.

독해 81 · The Right to Be Forgotten

In 2014 the highest court of the European Union ruled that people can ask search engines to remove links to information about them that is inadequate, irrelevant, or no longer relevant. The case began with a Spanish man who objected that searching his name still displayed a newspaper notice about the forced sale of his home years earlier, a debt he had long since paid. Supporters argue that the internet's perfect memory makes it impossible for people to move beyond past mistakes, unlike the gradual forgetting that once allowed reputations to recover. Critics worry that the right can be used to hide information the public has a legitimate interest in knowing, such as the past conduct of politicians or businesspeople. They also object that private companies are left to make difficult judgments balancing privacy against freedom of expression. Notably, the ruling did not require the newspaper to delete its original article. It required only that the link be removed from search results for the man's name. The information remained available to anyone who looked for it in the archive, but it was no longer the first thing the world learned about him. The case thus distinguishes between the existence of information and its prominence.

241 What did the 2014 ruling require, according to the passage?

① That politicians be allowed to hide reports of their past conduct from the public
② That search engines stop operating in Europe until privacy rules were written
③ That search engines remove certain links for a person's name, though the article could remain
④ That newspapers delete all old articles about private individuals from their archives

242 What does the final sentence mean by distinguishing between "existence" and "prominence"?

① Prominent information is usually false, so search engines should rank it lower.
② Deleted information still appears in search results until the newspaper removes the article.
③ Information can continue to exist while being made less easily found by casual searches.
④ Information that exists must always remain prominent so that the public can easily find it.

243 Which of the following represents the critics' concern most clearly?

① A newspaper keeps its full archive online and free for anyone to search.
② A person removes links to an old notice about a debt he long ago paid.
③ A search engine shows recent news first when someone searches a person's name.
④ A former official removes links to reports of his misconduct while in office.

독해 82 · Do Algorithms Trap Us?

Online platforms recommend content based on what users have previously clicked, watched, or liked. The activist Eli Pariser warned that this personalization creates "filter bubbles," in which people see only information that confirms their existing views. The idea is intuitive and has been widely blamed for political polarization. Empirical research, however, paints a more complicated picture. Several studies find that most people's online news diets are less narrow than feared, and that many people encounter opposing views on social media more often than in their offline lives. Moreover, polarization in some countries began rising before social media became widespread, and has risen fastest among older people who use the internet least. This does not mean algorithms are harmless. A small group of heavy users may indeed be drawn into extreme content, and exposure to opposing views can sometimes harden attitudes rather than soften them. The evidence suggests that the problem may lie less in what people are shown than in how they respond to it.

244 **Which finding most directly challenges the claim that social media caused polarization?**

① Polarization has increased fastest among older people who use the internet the least.
② The filter bubble idea is intuitive and has been widely blamed for political polarization.
③ Some heavy users are drawn into extreme content by recommendation algorithms.
④ Platforms recommend content based on what users have previously clicked or liked.

245 **What does the passage suggest about exposure to opposing views?**

① It always makes people more moderate, as long as the opposing views are presented fairly.
② It is the main cause of filter bubbles, since people react by avoiding such content.
③ It does not always reduce disagreement and can harden people's existing views.
④ It rarely happens on social media, where most people see only views they share.

246 **What is the author's overall conclusion?**

① Filter bubbles are the main cause of polarization and must be addressed by regulating algorithms.
② Algorithms have no effect on anyone, including the small group of heavy users.
③ Social media should be banned, because it exposes users to too many opposing views.
④ Filter bubbles may be overstated; people's responses may matter more than the content shown.

독해 83 · Will Machines Take All the Jobs?

Fears that technology will cause mass unemployment are as old as industrialization. In the early nineteenth century, English textile workers smashed machines they believed would destroy their livelihoods. Yet two centuries of rapid technological change have not produced permanent mass unemployment. Economists often point to the "lump of labor fallacy," the mistaken assumption that there is a fixed amount of work to be done. When machines make production cheaper, prices fall, people buy more, and new industries emerge, creating jobs that did not previously exist. Few people in 1900 could have imagined the occupations of software developer or physical therapist. The historical record, however, offers less comfort to individual workers. The new jobs often require different skills and appear in different places, so displaced workers may face long periods of lower wages, and some never recover. Whether artificial intelligence will follow the historical pattern is debated, since it may replace cognitive tasks that were previously the refuge of displaced workers.

247 What is the "lump of labor fallacy"?

① The view that technological unemployment, once it appears, is permanent
② The idea that workers should destroy machines to protect their livelihoods
③ The mistaken belief that the total amount of work in an economy is fixed
④ The belief that machines always harm workers by lowering prices and wages

248 Why might artificial intelligence differ from earlier technologies, according to some?

① It will create more physical labor, pushing workers back into manual jobs.
② It is cheaper than earlier machines, so it will spread across industries faster.
③ It may automate the thinking tasks that displaced workers previously moved into.
④ It cannot perform any cognitive tasks and will therefore leave white-collar work untouched.

249 What distinction does the author draw between the economy as a whole and individual workers?

① Technology has not caused permanent mass unemployment, yet individual workers can suffer lasting losses.
② The economy as a whole suffers from new technology while individual workers generally gain from it.
③ Individual workers always benefit from technology because new industries create new jobs.
④ There is no real difference, since both recover quickly from technological change.

독해 84 · Giving It Away

Much of the software that runs the internet, from web servers to operating systems, is open source: its code is freely available for anyone to use, study, and modify. Much of it was built by volunteers who were not paid for their contributions. To economists who expected people to work only for material rewards, this was puzzling. Researchers have identified several motivations. Some contributors solve problems they themselves face and share the solution at little cost; others enjoy the challenge or value belonging to a community. Many gain reputations that lead to job offers, since their code is visible to potential employers. Increasingly, companies also pay employees to contribute, because they rely on the shared software themselves. The model has a vulnerability, however. Some critical pieces of software are maintained by one or two unpaid volunteers, and when they burn out or overlook a security flaw, systems used by millions of people can be exposed.

250 **Why do companies increasingly pay employees to contribute to open-source projects?**

① Open-source software cannot legally be used by businesses without payment.
② It allows companies to sell the software that volunteers have written.
③ Volunteers have stopped working on most open-source projects.
④ They depend on the shared software for their own operations.

251 **What vulnerability of the open-source model does the passage describe?**

① Important software may rely on very few unpaid maintainers who can burn out or miss flaws.
② Open-source software is always less secure than paid software because anyone at all can read its code.
③ Open-source code is rarely used by companies, so few resources go into maintaining it.
④ Too many people contribute to each project, making errors impossible to trace.

252 **Which motivation for contributing is most directly related to future employment?**

① Enjoying the intellectual challenge of difficult problems
② Solving one's own problems and sharing the solutions cheaply
③ Building a visible reputation through publicly available code
④ Belonging to a community of fellow developers

독해 85 · How Long Should Copyright Last?

Copyright gives creators exclusive rights over their works for a limited time, after which the works enter the public domain and anyone may use them. The justification is a trade-off. Temporary monopoly rewards creators and encourages them to produce new works, while eventual expiration allows society to build on them. In the first American copyright law of 1790, the term was fourteen years, renewable once. Today, in many countries, it lasts for the author's life plus seventy years. Economists have questioned whether such long terms serve their purpose. Because money received far in the future is worth much less today, extending protection from fifty to seventy years after an author's death adds almost nothing to the incentive to create. It does, however, keep older works out of the public domain, where they could be reprinted, adapted, or digitized more cheaply. Many works from the twentieth century are now "orphaned": still under copyright, but with owners impossible to find, so no one can legally use them.

253 **Why do economists argue that extending copyright from fifty to seventy years after death adds little incentive?**

① Income expected so far in the future has little present value to a creator.
② Authors care little about money, so longer terms do not change their behavior.
③ Copyright is rarely enforced after death, so the extra years protect no one.
④ Most works are published after their authors' deaths, when incentives no longer matter.

254 **What is an "orphaned" work, according to the passage?**

① A copyrighted work whose owner cannot be found, so no one may legally use it
② A work created long ago by an anonymous author whose name has since been completely lost
③ A work that was never published and so never received copyright
④ A work that has entered the public domain after its term expired

255 **What trade-off does copyright represent, according to the passage?**

① Encouraging the reprinting of old works versus discouraging the creation of new ones
② Rewarding creators with temporary exclusive rights versus letting society freely use works afterward
③ Protecting readers from high prices versus protecting the long-term profits of large publishing houses
④ Making works cheaper to produce versus making them more beautiful and lasting

독해 86 · Do Patents Promote Innovation?

Patents give inventors a temporary monopoly, usually twenty years, in exchange for publicly disclosing how their inventions work. The standard argument is that without such protection, competitors could copy inventions cheaply, and no one would invest in costly research. The argument is strongest for pharmaceuticals, where developing a new drug can cost over a billion dollars but copying it is relatively easy. In other fields, the evidence is more mixed. Surveys of firms in many industries find that they rely more on being first to market, keeping secrets, and building on their own expertise than on patents. In software, thousands of overlapping patents can make it difficult to develop new products without risking lawsuits. Some companies, called patent trolls, produce nothing but acquire patents in order to sue others. Historical studies also suggest that countries without patent systems in the nineteenth century were not noticeably less innovative, though their inventions tended to concentrate in fields where secrecy was easy. Patents may shape the direction of innovation as much as its amount.

256 Why is the case for patents strongest in pharmaceuticals?

① Drugs are invented more quickly than other products, so protection must be longer.
② Pharmaceutical companies rarely compete, so patents simply formalize their existing markets.
③ Developing a drug is extremely costly, while copying a finished drug is comparatively cheap.
④ Drugs cannot be kept secret once they are sold to patients and doctors.

257 What does the historical evidence about countries without patents suggest?

① Lacking patents affected which fields inventors chose more than how much they invented.
② Countries without patent systems produced few inventions of any kind during the nineteenth century.
③ Secrecy was impossible in the nineteenth century, so inventors relied on being first.
④ Patents always increase the total amount of innovation, whatever the field involved.

258 How do patent trolls illustrate a problem with the patent system?

① They invent too many new products, flooding markets before competitors can respond.
② They disclose their inventions too widely, allowing competitors to copy them freely.
③ They use patents not to produce products but to profit from lawsuits against others.
④ They refuse to buy patents and instead freely copy the inventions of other, smaller companies.

독해 87 · Saying One Thing, Doing Another

In surveys, most people say they care deeply about privacy and are worried about how companies collect their personal data. Yet the same people routinely accept lengthy terms of service without reading them, share personal details on social media, and trade information for small discounts. This gap is known as the privacy paradox. One interpretation is that people do not really value privacy as much as they claim. Others argue that the behavior reflects the conditions under which choices are made rather than people's true preferences. Privacy policies are long and deliberately vague, the consequences of sharing data are invisible and delayed, and refusing often means giving up services that have become essential for work and social life. Under these circumstances, giving up and clicking "agree" may be a reasonable response rather than evidence of indifference. Some researchers describe this as "privacy resignation." If they are right, protecting privacy may depend less on educating individuals than on changing the rules that structure their choices.

259 What alternative explanation for the privacy paradox does the passage offer?

① People genuinely enjoy sharing personal data and see no reason to protect it.
② Surveys about privacy are always false, since respondents answer in ways that make them look responsible.
③ Behavior reflects hard conditions, like vague policies and no real alternatives, not a lack of concern.
④ People do not understand what privacy means, so their survey answers and behavior are confused.

260 What does "privacy resignation" refer to?

① Refusing to use any online service that collects personal information
② Accepting data collection because resisting seems futile, not because one does not care
③ Deleting all social media accounts after learning how companies share personal data
④ Quitting a job at a technology company over concerns about how it uses data

261 What policy implication does the final sentence suggest?

① Changing the rules on data collection may work better than teaching individuals caution.
② Individuals should be educated about privacy above all, so that they read every policy carefully.
③ Privacy cannot be protected, since people will always click "agree" anyway.
④ Companies should collect more data, since users accept it without complaint.

독해 88 · The Liar's Dividend

Artificial intelligence can now produce convincing fake videos and audio recordings, known as deepfakes, that show real people saying or doing things they never did. The most obvious danger is that people will believe false evidence. Legal scholars have identified a subtler problem, which they call the liar's dividend. As the public becomes aware that recordings can be faked, people caught on genuine recordings can more easily claim that the evidence against them is fabricated. A politician recorded making an offensive remark might simply dismiss it as a deepfake, and some of the public will believe him. In this way, the mere possibility of fakes can undermine trust in real evidence. The paradox is that educating people about deepfakes, while necessary, may increase this effect by making doubt easier to justify. Some researchers therefore emphasize technical methods for verifying authentic recordings at the moment they are made, such as digital signatures attached by cameras. Proving what is real may become as important as detecting what is fake.

262 What is the "liar's dividend"?

① The advantage gained by people who falsely claim genuine evidence against them is fake
② The money earned by people who produce and sell convincing deepfake videos
③ The reward given to people who detect fake videos before they spread widely
④ The profit technology companies make from selling artificial intelligence tools

263 Why might educating the public about deepfakes have an unintended effect?

① People will stop watching videos altogether once they learn that fakes exist.
② Greater awareness of fakes can make it easier to cast doubt on genuine evidence.
③ Education always reduces trust in fake videos while leaving trust in real recordings fully intact.
④ Education teaches people the techniques needed to produce deepfakes more easily.

264 Why do some researchers emphasize digital signatures attached at the time of recording?

① They make deepfakes impossible to create with current artificial intelligence.
② They prevent people from making recordings without official permission.
③ They can prove a recording is authentic, countering false claims of fakery.
④ They allow anyone to edit recordings while keeping a record of the changes.

독해 89 · Who Is Responsible When No One Drives?

When a human driver causes an accident, the law has well-established ways of assigning responsibility. Fully self-driving cars complicate this picture. If a vehicle controlled by software strikes a pedestrian, should the blame fall on the passenger, the manufacturer, the programmers, or the company that supplied the training data? Philosophers call this a responsibility gap: harm occurs, but no single human made the decision that caused it. Machine-learning systems make the gap wider, because their behavior emerges from training rather than from explicit instructions that a programmer could have foreseen. Some legal scholars propose treating manufacturers like other producers of dangerous products, holding them strictly liable for harm regardless of fault. This would give companies a strong incentive to make vehicles safe and ensure that victims are compensated. Critics worry that such liability could discourage the development of a technology that might, on balance, prevent far more accidents than it causes. The debate shows that new technologies can require not only new rules but new ways of thinking about responsibility itself.

265 Why do machine-learning systems widen the responsibility gap?

① Their behavior results from training rather than specific instructions that programmers could have anticipated.
② Programmers write every decision explicitly, so blame always falls on them alone.
③ They are always controlled by passengers, who must take over in an emergency.
④ They never cause accidents, so questions of responsibility do not arise for them.

266 What is the critics' concern about strict liability for manufacturers?

① It might slow the development of a technology that could reduce accidents overall.
② It would give manufacturers no reason to improve the safety of their vehicles.
③ It would place the blame for accidents on pedestrians rather than companies.
④ It would make victims less likely to be compensated for the harm they suffer.

267 What is meant by a "responsibility gap"?

① A situation where harm occurs but no single person made the decision causing it
② A difference in salary between the programmers and the drivers of vehicles
③ A long delay between an accident and the trial that finally assigns legal blame to someone
④ A stretch of road where self-driving cars are most likely to crash

독해 90 · Justice by Bargain

In the United States, the vast majority of criminal convictions, more than ninety percent, result not from trials but from plea bargains. A defendant agrees to plead guilty, usually in exchange for a reduced charge or a lighter sentence. Supporters argue that the system is efficient: trials are slow and expensive, and courts could not function if every case went to trial. Both sides gain certainty, and victims may be spared the ordeal of testifying. Critics see a darker side. Prosecutors can threaten much harsher sentences if a defendant insists on a trial, creating what some call a "trial penalty." Faced with the risk of decades in prison, even innocent defendants may rationally choose to plead guilty to a lesser charge. Studies of people later cleared by DNA evidence have found that a notable share had pleaded guilty. The system thus raises a fundamental question: whether a process designed for efficiency can still reliably separate the guilty from the innocent.

268 Why might an innocent defendant choose to plead guilty?

① Plea bargains are required by law for all defendants who are charged with a crime.
② The risk of a much harsher sentence after trial may make a lighter sentence seem safer.
③ Innocent people often want to be punished in order to end a long investigation.
④ Trials are rarely held in the United States because courts lack the time for them.

269 What evidence does the passage offer that plea bargaining can lead to wrongful convictions?

① Some people later exonerated by DNA evidence had pleaded guilty.
② Most trials result in acquittals, showing that guilty pleas are often unnecessary.
③ Prosecutors rarely offer bargains to defendants who might be innocent.
④ Victims prefer trials because they want the chance to testify.

270 What is the "trial penalty"?

① The cost of hiring a lawyer to represent a defendant through a long and complex trial
② The harsher sentence a defendant risks by rejecting a plea bargain and going to trial
③ A punishment imposed on victims who refuse to testify against a defendant at trial
④ A fine paid by prosecutors who bring weak cases to trial and lose them

독해 91 · When Results Are Significant but Small

Scientific studies often report that a result is "statistically significant," and many readers take this to mean that the effect is large or important. It means nothing of the kind. Statistical significance indicates only that the observed result would be unlikely if there were truly no effect at all. With a large enough sample, even a tiny effect can be statistically significant. A drug that lowers blood pressure by half a point might pass the test in a study of a hundred thousand people while being medically meaningless. Conversely, a genuinely important effect may fail to reach significance in a small study simply because there was too little data. For this reason, statisticians urge researchers to report effect sizes, which describe how large an effect is, along with confidence intervals that show the range of plausible values. The question that matters is usually not "Is there an effect?" but "How big is it, and is it big enough to care about?"

271 **Why can a tiny effect be statistically significant?**

① Statistical significance measures the size of an effect, so tiny effects rarely qualify.
② With a very large sample, even small differences become unlikely to occur by chance alone.
③ Large samples always produce large effects, which then appear tiny when averaged.
④ Small effects are always important when they are measured with modern statistical tools.

272 **Which report would the author consider most informative?**

① "The drug lowered blood pressure by an average of 8 points, with a likely range of 6 to 10 points."
② "The drug was tested on one hundred thousand people in many countries, making it one of the largest trials ever conducted."
③ "The drug had an effect on blood pressure that researchers described as clear and consistent across patients."
④ "The drug's effect was statistically significant, with a very small chance that it arose by luck alone."

273 **What does the passage imply about small studies that fail to find significant results?**

① They do not necessarily show that there is no important effect.
② They prove that the effect does not exist, since significance was not reached.
③ They are generally more reliable than large studies because they are easier to control.
④ They always produce large effect sizes that should be reported instead.

독해 92 · The Test Says Positive

Suppose a disease affects one person in a thousand, and a test for it is ninety-nine percent accurate. If you test positive, what is the chance that you actually have the disease? Most people, including many doctors, answer about ninety-nine percent. The correct answer is roughly nine percent. Imagine testing a hundred thousand people: about a hundred have the disease and nearly all of them test positive, but of the remaining 99,900 healthy people, one percent, nearly a thousand, also test positive by mistake. So among roughly eleven hundred positive results, only about a hundred are true. The error people make is called base rate neglect: they focus on the accuracy of the test and ignore how rare the disease is in the first place. The same reasoning applies to security screening, fraud detection, and any search for something rare. When the thing being sought is uncommon, even an accurate test will produce many false alarms, which is why positive results for rare conditions are usually confirmed with a second, independent test.

274 **Why is the chance of having the disease after a positive test only about nine percent?**

① Because doctors frequently misread the results of tests for very rare diseases.
② Because most people who actually have the disease test negative by mistake.
③ Because the test is actually accurate only nine percent of the time for most patients.
④ Because the disease is so rare that false positives from healthy people far outnumber true ones.

275 **What would happen to the probability that a positive result is correct if the disease were much more common?**

① It would decrease toward zero, because more sick people would produce more errors.
② It would increase, because true positives would form a larger share of all positives.
③ It would stay exactly at nine percent, since the test's accuracy would be unchanged.
④ It would depend only on the accuracy of the test, not on how common the disease is.

276 **Why are positive results for rare conditions usually confirmed with a second test?**

① Because doctors want to charge additional fees for repeated testing of patients.
② Because one positive result for a rare condition is likely to be a false alarm.
③ Because the first test is always wrong when the disease is uncommon.
④ Because rare diseases cannot be detected by any single test, however accurate that test may be.

독해 93 · When the Whole Contradicts the Parts

In the 1970s, the University of California, Berkeley, appeared to admit men to graduate school at a higher rate than women, and the university was concerned about discrimination. When researchers examined admissions department by department, however, they found that most departments admitted women at equal or slightly higher rates than men. How could the overall figure favor men while the individual departments did not? The answer was that women applied disproportionately to highly competitive departments that rejected most applicants of either sex, while men applied more often to departments that accepted most applicants. Combining the departments hid this difference and produced a misleading total. This phenomenon, in which a trend that appears in several groups reverses when the groups are combined, is known as Simpson's paradox. It appears in medicine as well, where a treatment can look worse overall simply because it is given more often to the most seriously ill patients. The paradox warns that aggregated data can mislead, but it does not tell us which level of analysis is correct; answering that requires understanding what causes what.

277 **Why did Berkeley's overall admission rate favor men?**

① Women applied to fewer departments overall and therefore had far fewer chances of being admitted.
② The university deliberately discriminated against women in every one of its departments.
③ Most departments admitted men at much higher rates than they admitted women.
④ Women tended to apply to departments that rejected most applicants, lowering their overall rate.

278 **Which situation is an example of Simpson's paradox?**

① Two classes have the same average score even though one has many more students.
② A store's total sales increase every month while its number of customers stays the same.
③ A medicine appears to work better in a larger study than in a smaller one.
④ A hospital has a higher overall death rate yet lower rates for both mild and severe cases.

279 **According to the last sentence, what is needed to decide which level of analysis is correct?**

① A much larger sample drawn from every group involved
② Always using the data separated into groups
③ An understanding of the causal relationships involved
④ Always using the combined data for the whole population

독해 94 · Falling Back to Average

In the 1870s, Francis Galton noticed that very tall parents tended to have children who were tall, but on average not as tall as their parents. Very short parents, similarly, had children who were somewhat taller than themselves. He called this regression toward the mean. The pattern arises whenever an outcome depends partly on stable factors and partly on chance. An extreme result is likely to involve unusual luck, which is unlikely to repeat. Regression explains many misleading impressions. Flight instructors once noticed that pilots who were praised for an exceptionally good landing usually did worse next time, while those criticized for a bad landing usually improved. They concluded that criticism works better than praise. But the changes would have happened anyway: exceptional landings tend to be followed by more ordinary ones, whatever the instructor says. The same error leads people to credit treatments, policies, or new coaches for improvements that would have occurred naturally after an unusually bad period.

280 **Why did the flight instructors wrongly conclude that criticism works better than praise?**

① Praised pilots became overconfident and took more risks on their next landing.
② The pilots ignored the instructors' feedback and relied on their own judgment.
③ Criticism actually is more effective, as the improvements after bad landings clearly show.
④ They overlooked that extreme performances tend to be followed by more ordinary ones anyway.

281 **Which situation is most likely to be misinterpreted because of regression toward the mean?**

① A plant grows taller after being given more sunlight than an identical plant in a controlled experiment.
② A company's profits rise after it doubles its sales staff in all regions.
③ A city puts speed cameras at last year's worst intersections, and accidents there then drop.
④ A student studies more and her grades rise steadily for three years.

282 **According to the passage, why does regression toward the mean occur?**

① People always try to become more average after an extreme performance.
② Outcomes partly depend on chance, and extreme chance events are unlikely to be repeated.
③ Measurements are always somewhat inaccurate, especially for very tall or very short people being measured.
④ Tall parents deliberately choose partners who are shorter than themselves.

독해 95 · The Law of First Digits

You might expect the first digits of numbers in real-world data, such as city populations or river lengths, to be spread evenly from one to nine. In fact, the digit one appears first about thirty percent of the time, while nine appears first less than five percent of the time. This pattern is called Benford's law, after the physicist who documented it across many kinds of data. It arises in data that span several orders of magnitude and grow by multiplication, because a number must double to move from one to two but increase by only about eleven percent to move from nine to ten. Numbers therefore spend more time with a leading one than with a leading nine. Accountants and auditors use the law to detect fraud. People who invent numbers tend to distribute first digits too evenly, so fabricated records often deviate from the expected pattern. The method has limits, however. Data with fixed ranges, such as human heights or prices set just below round numbers, do not follow the law, so a deviation is a reason for further investigation rather than proof of wrongdoing.

283 **Why do first digits of one appear more often than first digits of nine in many datasets?**

① Data are usually recorded incorrectly, and clerks tend to round numbers down to a leading one.
② People who collect data prefer the number one and unconsciously favor it when recording values.
③ In growing data, moving from one to two takes doubling, but nine to ten takes far less.
④ Nine is considered unlucky in many cultures, so values beginning with it are often avoided.

284 **Why can Benford's law help detect fraud?**

① The law proves that someone has committed fraud whenever their data deviate from it.
② Fraudsters tend to begin their invented numbers with the digit nine.
③ Real financial data rarely contain numbers that begin with the digit one.
④ People who make up numbers tend to spread first digits too evenly.

285 **Which type of data would be LEAST likely to follow Benford's law?**

① The lengths of the major rivers on several continents
② The populations of cities around the world
③ The sizes of companies' annual revenues worldwide
④ The heights of adult women in a city

독해 96 · The Dark Side of Expectation

The placebo effect, in which an inactive treatment produces real improvement, has a less famous twin: the nocebo effect. When people expect a treatment to cause harm, they often experience negative symptoms even if the treatment is inert. In clinical trials, a substantial proportion of patients receiving sugar pills report side effects such as headaches, fatigue, or nausea, and some drop out of the trial because of them. The symptoms are not imaginary in the sense of being invented; anxiety and attention can produce or amplify genuine bodily sensations. The effect poses a dilemma for doctors. Patients have a right to be informed about possible side effects, yet the very act of listing them may increase their occurrence. Some researchers suggest framing information carefully, for example by emphasizing that most patients tolerate a drug well, without hiding the risks. The nocebo effect may also help explain why some people report symptoms after hearing alarming news about a medication, even when studies show no real risk.

286 What dilemma does the nocebo effect create for doctors?

① Placebos are illegal to prescribe outside clinical trials, limiting how doctors can treat patients.
② Patients who learn about side effects tend to refuse all treatments offered to them.
③ Informing patients of side effects is required, but doing so may cause those side effects.
④ Doctors cannot prescribe any medicine without first testing it against a sugar pill.

287 In what sense are nocebo symptoms "not imaginary"?

① They are caused by the active ingredients of the drug being tested.
② They appear only in people who receive real medicine.
③ Anxiety and attention can create or intensify real physical sensations.
④ Patients deliberately invent them to leave the trial early.

288 Which approach do some researchers recommend?

① Presenting risks honestly while emphasizing that most patients have no problems with the drug
② Exaggerating the risks so that patients are fully prepared for any symptoms
③ Giving only placebos to the patients who seem most anxious about possible side effects of treatment
④ Hiding all side effects from patients so expectations cannot affect them

독해 97 · The Ecology of Cities

In 1961 the writer and activist Jane Jacobs challenged the urban planners of her day, who sought to replace crowded, mixed neighborhoods with orderly zones of housing, offices, and highways. She argued that the apparent disorder of old city streets was in fact a sophisticated form of order. Short blocks, mixed uses, buildings of different ages, and dense populations brought people onto the streets at all hours. Shopkeepers and residents who watched the sidewalks provided "eyes on the street," making neighborhoods safer without police. Old, inexpensive buildings allowed small new businesses to start, and the constant mixing of different people generated ideas. Jacobs's ideas were initially dismissed by planners, but they have since become central to urban thinking. Economists have found evidence that dense, diverse cities produce more patents and new firms per person. Ironically, the neighborhoods she celebrated have often become so desirable that rising rents push out the very small businesses and diverse residents that made them lively. Her vision, in other words, can be undermined by its own success.

289 **According to Jacobs, how did mixed neighborhoods contribute to safety?**

① They had fewer people on the streets, so there were fewer chances for crime.
② They were separated from offices and highways, which kept outsiders away.
③ They had more police officers than the orderly zones built by planners.
④ The constant presence of residents and shopkeepers watching the street discouraged crime.

290 **What irony does the author point out in the last two sentences?**

① Planners eventually abandoned Jacobs's ideas and returned to highway-based designs.
② Lively neighborhoods' success can raise rents and drive out the people who made them lively.
③ Jacobs's neighborhoods became dangerous once shopkeepers stopped watching the sidewalks.
④ Dense, diverse cities turned out to produce fewer patents and new firms per person.

291 **Why were old, inexpensive buildings important in Jacobs's view?**

① They were easier to demolish when the city needed space for new highways.
② They attracted large corporations seeking prestigious historic headquarters.
③ They were more beautiful and better built than modern buildings.
④ They gave small new businesses a place they could afford to start.

독해 98 · Broken Windows, Broken Debate

In 1982 two social scientists proposed that visible signs of disorder, such as broken windows, graffiti, and public drinking, signal that no one is in control and encourage more serious crime. Fixing small problems quickly, they argued, could prevent larger ones. The theory influenced policing in many cities, most famously New York, where police aggressively targeted minor offenses in the 1990s. Crime in New York then fell dramatically, and supporters credited the policy. Critics pointed out that crime also fell sharply in cities that did not adopt such tactics, during the same period. Other factors, including economic growth, changes in drug markets, and an aging population, may explain much of the decline. Aggressive enforcement of minor offenses also fell most heavily on poor and minority neighborhoods, damaging trust between residents and police. Some experiments support a narrower version of the theory: cleaning up vacant lots and repairing abandoned buildings, without arrests, has been linked to reductions in violence. The lesson may be that addressing physical disorder helps, but that equating disorder with arrests misreads the idea.

292 **Why is the fact that crime fell in other cities during the same period important?**

① It indicates that New York's crime statistics were false and exaggerated the decline.
② It suggests that factors other than broken-windows policing may explain New York's decline in crime.
③ It shows that New York's police were less effective than those in other cities.
④ It proves that broken-windows policing caused crime to fall in every American city.

293 **Which finding supports the "narrower version" of the theory?**

① Trust between police and residents increased in neighborhoods with aggressive enforcement.
② Arresting people for minor offenses always reduces serious crime within a few years.
③ Crime fell dramatically in New York in the 1990s after police targeted minor offenses.
④ Repairing abandoned buildings and cleaning vacant lots without arrests was linked to less violence.

294 **What does the author conclude in the last sentence?**

① Fixing physical disorder may help, but reading the theory as a call for arrests misunderstands it.
② Police should ignore all minor offenses and focus entirely on serious violent crime.
③ The broken windows theory is entirely correct, as New York's falling crime shows.
④ The theory has no value at all, since crime fell sharply even in cities where it was never applied.

독해 99 · When Crowds Are Wise

In 1906 Francis Galton observed a contest at a country fair in which about eight hundred people guessed the weight of an ox. Individual guesses varied widely, but their median was within one percent of the true weight, closer than most experts. This "wisdom of crowds" works because individual errors in different directions tend to cancel out when many independent estimates are combined. The key word is independent. If people influence one another before guessing, their errors become correlated and no longer cancel. In one experiment, participants who could see others' estimates converged toward a common answer and became more confident, yet their collective accuracy did not improve and sometimes worsened. Diversity matters as well: a crowd whose members share the same biases will simply reproduce those biases on a larger scale. The conditions that make crowds wise are thus easily destroyed by social media, meetings dominated by a few voices, or groups drawn from a single background. Organizations that want to benefit from collective judgment often ask members to record their views privately before any discussion.

295 **Why does the wisdom of crowds depend on independence?**

① Independent people are always more intelligent than those who follow the crowd.
② Crowds are wise only when they discuss their answers and reach a shared estimate.
③ Errors cancel only when not influenced by one another; shared influence pushes them the same way.
④ Independence makes people more confident, and confident guessers tend to be more accurate.

296 **What did the experiment with visible estimates show?**

① Seeing others' answers greatly improved the accuracy of the group.
② Seeing others' answers increased confidence without improving accuracy.
③ Participants refused to change their original estimates.
④ Confidence decreased as the estimates converged.

297 **Why do some organizations ask members to record their views before discussion?**

① To preserve the independence of individual judgments before group influence sets in
② To prevent members from expressing any opinion during the discussion itself
③ To ensure that everyone agrees with the leader's view before the meeting starts
④ To make meetings longer so that every view receives careful attention

독해 100 · Foxes and Hedgehogs

For nearly two decades, the psychologist Philip Tetlock collected thousands of predictions from experts on politics and economics and later checked how accurate they had been. The average expert performed only slightly better than random guessing, and often worse than simple statistical rules. Yet some experts did much better than others, and the difference lay not in what they knew but in how they thought. Borrowing an image from an ancient Greek poet, Tetlock distinguished "hedgehogs," who know one big thing and explain everything through a single theory, from "foxes," who know many small things and draw on diverse sources. Foxes were consistently more accurate. They were more willing to admit uncertainty, to change their minds in response to new evidence, and to see the world as complex. Hedgehogs, ironically, were more likely to appear in the media, because confident, simple stories make better television. Tetlock later found that ordinary volunteers trained to think like foxes, breaking problems into parts and updating frequently, could outperform professional analysts.

298 What distinguished more accurate forecasters from less accurate ones in Tetlock's research?

① Their fame in the media and their skill at telling confident stories
② Their commitment to a single big theory that explained every event
③ Their way of thinking, including openness to diverse sources and willingness to revise views
④ The amount of specialized knowledge they had gathered in their fields

299 Why were hedgehogs more likely to appear in the media, according to the passage?

① Media companies hired only hedgehogs because they held popular political views.
② Confident, simple explanations are more appealing to broadcast than cautious, complex ones.
③ Hedgehogs were more accurate, so journalists trusted their predictions more.
④ Foxes refused to talk to journalists because they disliked making any confident public claims.

300 What does the finding about trained volunteers suggest?

① Forecasting is impossible, since even trained volunteers barely beat chance.
② Good forecasting is a learnable skill, not just a product of expertise.
③ Training makes people think more like hedgehogs, focusing on one big explanatory theory.
④ Volunteers always know more than professional analysts about world events.

Try Exam

정답과 해설

상위권 독해 100

정답

1 ②	2 ③	3 ④	4 ①	5 ①
6 ②	7 ①	8 ①	9 ③	10 ④
11 ④	12 ④	13 ④	14 ④	15 ①
16 ④	17 ④	18 ③	19 ①	20 ③
21 ①	22 ④	23 ①	24 ③	25 ②
26 ①	27 ②	28 ③	29 ①	30 ②
31 ③	32 ①	33 ④	34 ③	35 ②
36 ①	37 ④	38 ④	39 ③	40 ②
41 ④	42 ②	43 ②	44 ③	45 ④
46 ②	47 ②	48 ②	49 ①	50 ②
51 ③	52 ①	53 ②	54 ②	55 ③
56 ②	57 ①	58 ③	59 ③	60 ④
61 ④	62 ④	63 ②	64 ④	65 ①
66 ①	67 ②	68 ①	69 ①	70 ③
71 ②	72 ③	73 ①	74 ②	75 ④
76 ②	77 ①	78 ④	79 ①	80 ②
81 ①	82 ④	83 ①	84 ③	85 ③
86 ③	87 ②	88 ④	89 ①	90 ①
91 ①	92 ③	93 ④	94 ②	95 ②
96 ④	97 ①	98 ③	99 ①	100 ①
101 ①	102 ③	103 ④	104 ④	105 ③
106 ④	107 ②	108 ④	109 ④	110 ②
111 ③	112 ③	113 ①	114 ①	115 ①
116 ①	117 ②	118 ①	119 ②	120 ③
121 ②	122 ③	123 ③	124 ①	125 ①
126 ③	127 ①	128 ②	129 ②	130 ②
131 ④	132 ③	133 ④	134 ④	135 ②
136 ①	137 ③	138 ②	139 ③	140 ②
141 ②	142 ③	143 ①	144 ④	145 ④
146 ②	147 ④	148 ④	149 ④	150 ①
151 ④	152 ③	153 ④	154 ②	155 ②
156 ②	157 ②	158 ④	159 ②	160 ④
161 ③	162 ③	163 ③	164 ③	165 ①

166 ④	167 ①	168 ③	169 ④	170 ①
171 ④	172 ④	173 ①	174 ②	175 ②
176 ②	177 ③	178 ④	179 ③	180 ④
181 ④	182 ①	183 ④	184 ③	185 ③
186 ②	187 ①	188 ②	189 ③	190 ④
191 ①	192 ④	193 ③	194 ③	195 ④
196 ④	197 ④	198 ①	199 ④	200 ①
201 ③	202 ③	203 ②	204 ②	205 ②
206 ②	207 ①	208 ①	209 ④	210 ④
211 ①	212 ②	213 ②	214 ③	215 ①
216 ②	217 ②	218 ③	219 ③	220 ④
221 ①	222 ④	223 ③	224 ②	225 ②
226 ③	227 ②	228 ②	229 ③	230 ④
231 ④	232 ①	233 ③	234 ④	235 ②
236 ③	237 ③	238 ④	239 ①	240 ③
241 ③	242 ③	243 ④	244 ①	245 ③
246 ④	247 ③	248 ③	249 ①	250 ④
251 ①	252 ③	253 ①	254 ①	255 ②
256 ③	257 ①	258 ③	259 ③	260 ②
261 ①	262 ①	263 ②	264 ③	265 ①
266 ①	267 ①	268 ②	269 ①	270 ②
271 ②	272 ①	273 ①	274 ④	275 ②
276 ②	277 ④	278 ④	279 ③	280 ④
281 ③	282 ②	283 ③	284 ④	285 ④
286 ③	287 ③	288 ①	289 ④	290 ②
291 ④	292 ②	293 ④	294 ①	295 ③
296 ②	297 ①	298 ③	299 ②	300 ②

해설

1. ② 마지막 문장에서 쉬운 일이 단순해서가 아니라 그 규칙이 수행자에게조차 명시적으로 드러난 적이 없기 때문이라고 했어요. 말로 꺼낼 수 없는 규칙은 프로그램으로 옮기기 어렵다는 뜻이에요. ①은 오히려 반대이고, ③·④는 근거가 없어요.

2. ③ 완벽한 문서가 있어도 직접 해 본 사람이 보여 줘야 쓸모가 생긴다는 것은, 가장 명시적인 과학조차 시범으로 전해지는 암묵지에 기댄다는 앞 문장을 뒷받침해요.

3. ④ 암묵지는 알고 있지만 말로 설명하지 못하는 앎이에요. 측정치보다 먼저 악화를 감지하지만 이유를 설명하지 못하는 간호사가 그 예예요. 나머지는 모두 명시적 규칙을 따르는 경우예요.

4. ① 결과가 뻔했던 것처럼 보이면 진짜 불확실성을 인정하지 않게 되어, 불확실한 상황을 다루는 법을 개선하지 못해요. 그래서 실수에서 배우는 것이 적고 예측력을 과신하게 돼요.

5. ① 편향은 결과를 아는 데서 생기므로, 결과를 알려 주지 않고 당시 정보만으로 판단하게 하면 줄일 수 있어요. ④·③은 오히려 편향을 키워요.

6. ② 사람들은 실제로 일어난 사건에 더 높은 확률을 매겼다고 기억했어요. 자신의 과거 예측에 대한 기억이 실제 결과 쪽으로 이동한다는 증거예요.

7. ① 기업은 활동 하나를 더 내부에서 조직하는 비용이 시장에서 사는 비용과 같아질 때까지 성장한다고 했어요.

8. ① 거래 비용(상대 찾기, 계약, 감시)이 낮아지면 외부에서 사는 것이 유리해져 기업이 작아져요. ③·②는 거래 비용을 높여 기업을 키우는 쪽이에요.

9. ③ 내부 조직에도 관료주의 같은 비용이 있기 때문에 기업이 무한히 커지지 않고 균형점에서 멈춘다는 것을 설명하려는 거예요.

10. ④ 혼자 일어서면 잘 보이지만 모두 일어서면 아무도 잘 못 보는 것은, 개인에게 참인 것이 전체에 참이 아닌 구성의 오류를 보여 줘요.

11. ④ 마지막 문장에서 역설은 주로 놀고 있는 노동자와 공장이 있을 때 적용된다고 했어요. 완전 가동 상태에서는 가장 적용되기 어려워요.

12. ④ 민간이 지출을 줄일 때 정부가 더 지출하는 이유 중 하나라고 했으므로, 정부 지출이 민간 지출 감소를 상쇄할 수 있다는 데 동의할 거예요. ②는 '저축이 나쁘다는 뜻이 아니다'와 어긋나요.

13. ④ 과거 투자가 중요한 것은 돈을 회수할 수 있어서가 아니라 손을 떼는 것이 평판·신뢰 손상 같은 새로운 비용을 낳기 때문이라고 했어요. ①은 본문과 정반대예요.

14. ④ 매몰 비용 자체는 무시하되, 공개적으로 포기했을 때 생기는 결과(평판·신뢰)는 정당하게 고려할 수 있다는 뜻이에요.

15. ① 아무도 모르고 신경 쓰지 않으니 평판 같은 새 비용이 없어요. 이미 낸 돈 때문에만 계속 먹는 것은 순수한 매몰 비용의 오류예요. ④는 연구자들이 합리적일 수 있다고 본 경우예요.

16. ④ 자기 위치를 모르면 자신에게 유리하게 규칙을 설계할 수 없어 특정 집단에 치우치지 않은 원칙을 찾을 수 있어요. ②는 롤스가 일부 불평등은 허용한다고 했으므로 틀려요.

17. ④ 비판자들은 베일 뒤의 사람들이 번영의 가능성을 위해 고난의 위험을 감수하는 도박을 할 수도 있다고 해요. 위험 감수 성향에 대한 가정이 다르다는 거예요.

18. ③ 롤스는 불평등이 가장 불리한 사람에게 이익이 될 때만 허용해요. ③이 정확히 그 조건이에요. ④는 기본적 자유 보장과 충돌하고, ①은 가장 어려운 사람의 이익과 무관하게 평등만 강조해요.

19. ① 진공에서 중력만 분리하듯, 복잡한 요소를 걷어 내면 행위의 어떤 특징이 도덕적 차이를 만드는지 분리해 낼 수 있다는 유비예요.

20. ③ 다섯을 살리고 하나를 잃는 계산은 같은데 반응이 다르다는 점에서, 숫자 외의 특징(수단으로 쓰는가 등)이 도덕적 판단에 작용함을 보여 줘요.

21. ① 비판자들은 인위적 시나리오에 대한 반응이 실제 도덕적 삶에 관해 알려 주는 바가 적다고 해요. 답변이 실제 행동을 잘 예측하지 못한다면 그 주장이 강화돼요.

22. ④ 감시받는지 확신할 수 없게 만들어 수감자가 항상 감시받는 것처럼 스스로를 단속하게 해요. 벤담은 끊임없는 감시가 불필요하다고 했으므로 ②는 틀려요.

23. ① 수감자는 감시 가능성을 알고 행동을 바꿨지만, 디지털 수집은 보이지 않아 규율보다는 모르게 예측·영향을 주는 데 힘이 있다는 차이를 강조해요.

24. ③ 푸코의 근대 권력은 보이는 힘이 아니라 기록·비교로 개인을 가시화해 스스로 행동을 바꾸게 하는 방식이에요. 관리자가 없어도 기록되기 때문에 열심히 일하는 직원이 그 예예요. ④·②는 눈에 보이는 힘이에요.

25. ② 경쟁 배열의 우월성 증거가 주로 발명자 본인의 연구였고 독립 실험에서는 차이가 작았어요. 그래서 '열등한 기술에 묶인' 사례로서의 힘이 약해졌어요. ①은 마지막 부분과 어긋나요.

26. ① 발명자 자신이 수행한 연구는 이해관계 때문에 편향되었을 가능성이 있어요. 그래서 독립적 실험이 중요한 거예요. 부정직을 '증명'한 것은 아니에요.

27. ② 마지막 문장에서 대안이 단지 다르거나 새로운 것이 아니라 상당히 더 낫다는 증거가 필요하다고 했어요.

28. ③ 두 경우 모두 10달러를 아끼고 시간·연료 비용도 같으므로 결정도 같아야 하지만, 사람들은 가격 대비 비율로 판단해 다르게 행동해요.

29. ① 어떤 영수증도 읽지 않은 책이나 전화하지 않은 친구를 기록하지 않는다고 했어요. 포기한 것은 보이지 않아서 간과하기 쉬워요.

30. ② 기회비용으로 생각한다는 것은 모든 시간을 돈으로 취급하는 것이 아니라 쏟기 전에 다른 용도를 묻는 것이라고 했어요. ①은 본문의 콘서트 예와 반대예요.

31. ③ 반대는 과거 연결의 증거가 아니라 메커니즘의 부재를 향했다고 했어요. 대륙을 움직이는 힘을 설명하지 못한 것이 핵심 이유예요.

32. ① 글쓴이는 흔한 '무시당한 천재' 서사에 반대하며 비판자들의 회의가 불합리하지 않았다고 해요. 당시로서는 이해할 만한 의심이라는 평가예요. ②는 결국 이론이 옳았으므로 지나쳐요.

33. ④ 패턴(효과)은 관찰되지만 메커니즘이 없어 수용이 늦어지는 구조가 베게너의 경우와 같아요.

34. ③ 치명적인 병동은 부검 직후 오는 의사들이, 안전한 병동은 그렇지 않은 조산사들이 맡았어요. 시체와의 접촉 여부라는 차이가 가설을 뒷받침해요.

35. ② 늦은 발표, 형편없는 제시, 공격적인 편지, 그리고 세균 이론의 부재로 설명이 모호해 보였던 점을 들었어요. ①은 사망률이 극적으로 떨어졌다는 본문과 반대예요.

36. ① 옳은 것만으로는 충분하지 않고 다른 사람들이 평가하고 받아들일 수 있게 전달되어야 한다는 것이 교훈이에요. ④는 글쓴이가 단순화된 서사라고 본 해석이에요.

37. ④ 기준선 근처 학생들은 거의 같고 학교 다니는 것만 달라요. 그래서 이후 결과의 차이를 학교 효과로 볼 수 있어요. 가정 배경이라는 교란을 피하는 설계예요.

38. ④ 명문 학교의 결과가 학교 안 일보다 주로 선발한 학생들을 반영한다고 했어요. 어차피 잘했을 학생을 뽑았기 때문이라는 뜻이에요.

39. ③ 글쓴이는 '또래가 결코 중요하지 않다는 것을 증명하지는 않는다'고 했어요. ③은 지나친 결론이라 거부할 거예요.

40. ② 질병이 드물어지면 사람들이 그 위험을 잊어 과소평가하게 된다고 했어요.

41. ④ 다른 사람들의 접종이 만든 보호(공유된 이익)를 누리면서 자기 비용은 피하는 것은 무임승차예요.

42. ② 필요한 문턱은 전염성에 달려 있어요. 전염성이 가장 약한 병이 가장 낮은 접종률로도 집단 면역에 도달해요.

43. ② 자기 평가가 실제 점수와 느슨하게만 연결되어 있고 모두가 평균 이상이라고 생각하면, 미숙한 사람의 특별한 맹목 없이도 같은 그래프가 나올 수 있다는 것이 요점이에요.

44. ③ 잘 수행하는 데 필요한 기술이 서투른 수행을 알아보는 데 필요한 기술과 같다는 '이중의 짐'이 원 저자들의 설명이에요.

45. ④ 패턴이 실제 현상이 아니라 측정 방식(표본 선정)에서 생긴 예예요. 나머지는 실제 인과 관계를 보여 줘요.

46. ② 경제학 모델은 선호가 결과에 달려 있다고 가정했는데, 같은 결과도 묘사만 바꾸면 선택이 달라졌기 때문이에요. ①은 손실 틀에서 도박을 택한 결과와 어긋나요.

47. ② 같은 정보라도 생존(이득) 틀로 제시하면 확실해 보이는 선택이 더 매력적으로 느껴져요. 사망(손실) 틀은 거부감을 키워요.

48. ② 사람들은 손실에 직면하면 위험을 추구한다고 했어요. 확실한 400명 사망을 피하려고 도박을 택한 거예요. ③은 기댓값이 같으므로 틀려요.

49. ① 숫자가 무작위이고 질문과 무관하다는 것을 알았는데도 추정에 영향을 줬다는 점이 앵커링의 강력한 증거예요.

50. ② 다른 숫자를 정당화할 이유를 생각하는 '반대 앵커'가 부분적 해결책이라고 했어요. 편향을 아는 것만으로는 거의 도움이 안 된다고 했으므로 ④는 오답이에요.

51. ③ 협상에서 높은 호가가 최종 합의를 끌어올린다고 했어요. 지원자가 먼저 높은(합리적인) 숫자를 제시하면 유리하게 앵커를 걸 수 있어요.

52. ① 큰돈을 딸 작은 확률도, 재난이 일어날 작은 확률도 실제보다 크게 느껴져 둘 다 사게 된다고 했어요.

53. ② 99%에서 100%로의 변화는 위험을 확실성으로 바꾸기 때문에 중간의 같은 1포인트 변화보다 훨씬 가치 있게 느껴진다고 했어요.

54. ② 일어날 것 같지 않은 고장의 작은 확률을 과대평가하는 경향을 기업이 이용한다고 했어요.

55. ③ 정치에는 무관심한 사람들도 결정이 자기에게만 달린 차 구매에서는 조사한다는 점은, 무지가 게으름이 아니라 유인에 대한 반응이라는 주장을 뒷받침해요.

56. ② 아는 것이 적은 유권자는 구호나 관심을 기울이는 조직된 집단에 흔들릴 수 있다고 했어요.

57. ① 지름길은 세부를 직접 조사하지 않고 정당 명칭, 신뢰하는 단체의 지지 등에 기대는 것이에요. ④~②는 세부 정보를 직접 모으는 방법이에요.

58. ③ 극단의 유권자는 이동해도 여전히 더 가까운 후보를 고르므로, 중앙으로 가면 표를 잃지 않고 얻을 수 있다는 논리예요.

59. ③ 극단적 당원이 지배하는 예비 선거를 먼저 통과해야 한다는 점이 양극화를 설명하는 요인으로 제시됐어요. ①~④는 모델 자체의 가정이에요.

60. ④ 현실이 모델에서 벗어나는 방식이 실제로 작용하는 힘을 드러내기 때문에 유용하다고 했어요.

61. ④ 자원 수입으로 재원을 마련하면 세금을 걷을 필요가 없어 시민의 목소리를 들을 이유가 적어진다고 했어요.

62. ④ 두 나라는 자원을 잘 관리해 저주를 피한 사례로, 저주가 운명이 아니며 제도의 질이 결정적이라는 것을 보여 줘요.

63. ② 결정적 요인은 부가 도착할 때의 제도의 질이에요. 약한 제도에 막대한 석유가 들어오는 ②가 저주로 이어질 가능성이 가장 커요.

64. ④ 변호사가 타자에 쓰는 시간은 더 가치 있는 법률 업무를 포기한 시간이에요. 기회비용이 크기 때문에 타자를 맡기는 것이 이득이에요. 비서에게 절대 우위가 있는 것은 아니에요.

65. ① 비교 우위는 다른 재화를 가장 적게 희생하며 생산할 수 있는 것에 특화하는 것이고, 한쪽이 모든 면에서 나아도 성립해요.

66. ① 전체적으로는 이익이지만 나라 안의 모든 노동자가 이득을 보는 것은 아니어서 논쟁이 남는다고 했어요.

67. ② 소수의 대형 고용주가 경쟁 시장보다 낮게 임금을 줄 힘이 있다는 설명은, 노동 시장이 완전 경쟁적이라는 기본 이론의 가정을 문제 삼아요.

68. ① 완만한 인상은 고용 영향이 작고, 매우 큰 인상은 일자리를 없앨 가능성이 크다는 데 대부분 동의한다고 했어요.

69. ① 이웃한 두 주는 여러 면에서 비슷하므로 고용 차이를 임금 변화와 연결할 수 있어요. ②는 한 주만 임금을 올렸으니 틀려요.

70. ③ 공제액은 손실의 첫 부분을 피보험자가 내게 해서 손실을 피할 이해관계를 남겨 둬요.

71. ② 도덕적 해이는 부정직이 아니라 바뀐 유인에 대한 예측 가능한 반응이라는 점을 분명히 하려는 거예요.

72. ③ 보험 덕분에 손실 비용을 자기가 부담하지 않으니 예방을 덜 하는 것이 도덕적 해이예요. ②는 가입 전 정보 차이로 생기는 역선택이에요.

73. ① 구매자는 좋고 나쁨을 구별하지 못해 평균 가격만 제시하고, 이 가격이 좋은 차 주인에게는 너무 낮아서 빠져요.

74. ② 문제의 원인은 정보 불균형이에요. 독립 검사로 상태를 인증하면 구매자가 부족한 정보를 얻어 문제가 줄어요.

75. ④ 중고차는 판매자가, 보험은 구매자(가입자)가 정보를 더 가진 경우예요. 어느 쪽이든 정보 불균형이 있으면 역선택이 생겨요.

76. ② 마지막 해를 마칠 때 소득이 학습 1년분보다 크게 뛴다면, 학습 자체보다 '졸업장(자격)'이 보상받는 것이라는 신호 이론을 뒷받침해요. ①은 지나친 결론이에요.

77. ① 힘든 학위를 마치는 것이 유능하고 성실한 사람에게 더 쉬우므로 학위 자체가 그 자질의 신호가 돼요.

78. ④ 교육이 주로 신호라면 교육 확대는 생산성을 높이지 않고 더 높은 자격증을 향한 값비싼 경주만 일으킬 수 있다고 했어요.

79. ① 불빛은 배제할 수 없지만 항구는 배제 가능해서, 항구에서 요금을 걷는 방식으로 둘을 연결했어요.

80. ② 코스의 요점은 정부가 불필요하다는 것이 아니라 시장 실패를 선언하기 전에 제도가 실제로 어떻게 작동하는지 연구해야 한다는 것이었어요.

81. ① 비경합적이라는 것은 한 사람의 사용이 다른 사람이 쓸 수 있는 양을 줄이지 않는 것이에요. 라디오 방송이 그 예예요. 나머지는 한 사람이 쓰면 다른 사람이 못 써요.

82. ④ 사용자가 옮기면 모든 연락처가 있는 곳을 버려야 하므로, 제품이 더 나아도 전환의 손실이 커서 실패할 수 있어요.

83. ① 데이터와 연락처를 자유롭게 옮길 수 있으면 전환 비용이 줄어, 플랫폼을 분할하지 않고도 경쟁이 가능해져요. 분할과 방치 사이의 대안이에요.

84. ③ 분할하면 사용자 가치가 줄고, 두면 사용자에게 조건을 강요할 수 있어 딜레마가 생긴다고 했어요.

85. ③ 이득은 널리 퍼지고 손실은 특정 집단에 집중되는 비대칭 때문에 손실을 보는 쪽이 강하게 저항해요. ①은 '사회 전체에 이익일 때조차'와 반대예요.

86. ③ 변화를 막지 말고 재교육·소득 지원·이주 지원으로 피해자를 보호하라고 했어요. ②·④는 변화를 막는 정책이에요.

87. ② 비슷한 기업 사이의 안정적 경쟁이 아니라 새것이 옛것을 대체하는 격동(창조적 파괴)이 성장의 원천이라고 했어요.

88. ④ 법이 같은 가치로 받게 했기 때문에, 가치가 낮은 동전은 쓰고 높은 동전은 간직했어요.

89. ① 법이 두 동전을 같은 가치로 받아들이도록 강제한 조건이 핵심이라고 했어요. ②는 반대 현상이 일어나는 조건이에요.

90. ① 자유롭게 가치를 매길 수 있으면 판매자들이 안정적인 외국 돈을 요구해 양화가 악화를 구축해요. 그레셤의 법칙이 보편 법칙이 아님을 보여 줘요.

91. ① 포유류에서는 표지가 두 번 지워지므로 인간에서 세대 간 전달이 일부 다른 생물보다 일어나기 어려워요. 후성유전학 자체를 부정하는 것은 아니에요.

92. ③ 부모는 생물학뿐 아니라 환경도 물려주므로, 양육 환경의 영향이 생물학적 유전으로 오인될 수 있다고 했어요.

93. ④ 진정하고 중요한 분야라고 인정하면서, 초기·동물 연구를 인간 유전의 확립된 사실로 다루는 것을 경계해요.

94. ② 연습한 게임과 비슷한 과제에서만 나아지고 무관한 능력으로는 거의 전이되지 않아서 '모든 영역에서 똑똑해진다'는 주장이 근거가 약하다는 거예요. ①은 본문이 인정한 사실과 반대예요.

95. ② 뇌는 실제로 하는 일에 반응해 변한다는 뜻으로, 일반적 향상이 아니라 수행한 특정 활동에 적응한다는 의미예요.

96. ④ 능력을 향상하는 최선의 방법은 그 능력 자체를 연습하는 것이라고 했어요. 에세이 실력은 에세이를 쓰는 연습으로 늘어요.

97. ① 관찰 연구의 연관성은 다른 요인 때문일 수 있지만, 일정을 의도적으로 바꾼 실험에서 혈당 조절이 바로 변했다면 직접적 효과를 뒷받침해요. ③은 과장이에요.

98. ③ 야간 일을 맡는 사람들의 특성이나 불규칙한 일정의 스트레스 같은 다른 요인이 연관성을 부분적으로 설명할 수 있다고 했어요.

99. ① 마지막 문장에서 식사 시간을 규칙적으로 유지하고 빛 노출을 조절해 해를 줄이라고 했어요.

100. ① 섬에는 큰 포식자가 없어 작은 공간에 숨을 필요가 줄고, 자원 경쟁에 유리하도록 커질 수 있다고 했어요.

101. ① 포식자 부재와 고립, 섬 크기가 변화를 이끈다고 했으므로, 포식자 없는 작고 고립된 섬에서 쥐가 더 커지는 것이 일관돼요. ④는 먹이가 부족하면 큰 동물이 작아진다는 설명과 반대예요.

102. ③ 많은 종이 따르지 않고, 그 강도가 섬 크기·고립·경쟁자에 따라 달라지기 때문에 법칙이 아닌 경향이라고 했어요.

103. ④ 형제는 유전자를 절반, 사촌은 8분의 1 공유하므로 형제 둘이나 사촌 여덟을 구하면 자기 유전자를 보존하는 셈이에요. 친족 선택의 계산을 농담으로 보여 줘요.

104. ④ 친족이 가까이 있을 때 경고음이 늘어나는 것은 이타 행동이 친족을 향한다는 친족 선택의 예측과 일치해요. ②·③은 다른 설명이 필요한 경우예요.

105. ③ 친족 선택이 모든 협력을 설명하지 않는다고 하며 상호 호혜, 평판, 제도 같은 추가 설명이 필요함을 보여 줘요. 이론을 부정하는 것이 아니라 한계를 지적해요.

106. ④ 함께 진화하는 다른 종들 때문에, 같은 자리(상대적 위치)를 유지하려면 계속 진화해야 한다는 점이 '같은 자리에 있으려고 힘껏 달린다'는 이미지와 맞아요.

107. ② 매 세대 유전자를 섞어 자손을 '움직이는 표적'으로 만들어서 기생체가 모두에게 적응하기 어렵게 해요. ④·①은 무성 생식의 특징이에요.

108. ④ 한쪽의 개선이 다른 쪽의 반대 개선을 불러 끝없이 이어지는 공진화 군비 경쟁이에요. 항생제와 세균의 경우가 같은 구조예요.

109. ④ 물리적·생태적 제약이 진화를 제한된 설계로 이끌어 같은 해결책이 거듭 나타날 수 있다는 것은 진화가 부분적으로 예측 가능하다는 함의예요.

110. ② 날지 못한 공통 조상에서 박쥐와 새가 각각 날개를 진화시킨 것은 관련 없는 계통에서 비슷한 특성이 독립적으로 나타난 수렴 진화예요. ④는 공통 조상에게서 물려받은 경우예요.

111. ③ 제약이 진화를 제한된 설계 '쪽으로 이끈다'는 뜻이므로 guide(인도하다)가 가장 가까워요.

112. ③ 해달이 성게를 먹어 억제했는데, 해달이 사라지자 성게가 폭증해 다시마를 먹어 치웠어요. 간접적인 연쇄 효과예요.

113. ① 아치에서 쐐기돌 하나를 빼면 전체가 무너지듯, 숫자가 적은 핵심종 하나를 잃으면 생태계 전체가 무너질 수 있어요.

114. ① 핵심종을 보호하면 많은 다른 생물에게 한꺼번에 이익이 된다고 했어요. ③·④는 본문의 교훈과 반대예요.

115. ① 인간 사냥, 혹독한 겨울, 곰·퓨마, 비버 부재로 인한 물길 변화 등 다른 요인들이 함께 작용했기 때문이에요. ③은 '일부 생태계에서는 잘 확립'과 어긋나요.

116. ① 비버가 사라져 개울이 깊은 물길을 파 놓았기 때문에, 엘크의 뜯어 먹기가 줄어도 버드나무가 완전히 회복되지 못했다는 다른 요인을 제시해요.

117. ② 사람들은 얽힌 여러 원인보다 하나의 영웅적 원인을 선호한다고 했어요.

118. ① 햇빛 반사는 온도를 낮출 수 있어도 이산화탄소 자체를 줄이지 않으므로, 이산화탄소가 녹아 생기는 산성화는 그대로예요.

119. ② 먹이 그물 바닥의 플랑크톤이 타격을 받으면 그 위의 물고기와 어업에 의존하는 사람들에게까지 퍼질 수 있다는 점을 강조해요.

120. ③ 바다의 흡수가 온난화를 늦췄지만(문제 감소) 산성화라는 대가를 낳았다고 했어요(문제 생성). ②는 마지막 문장과 반대예요.

121. ② 작가의 통제를 거부해도 단어·문법·작품의 패턴이라는 텍스트의 제약은 남아, 설득력 있는 해석을 여전히 제한한다고 응수해요.

122. ③ 통일성이 기원(작가)이 아니라 목적지(독자)에 있다는 것은, 의미가 독자에 의해 구성된다는 뜻이에요.

123. ③ 작가의 의도에 권위가 없으면 터무니없는 해석도 막을 수 없다는 비판자들의 우려, 즉 해석이 자의적이 될 수 있다는 걱정을 보여 주는 예시예요.

124. ① 화자가 말하는 것과 독자가 이해하게 되는 것 사이의 간극에 힘이 있다고 했어요.

125. ① 독자는 화자의 맹목을 보기 전에 공감하므로, 진실한 사람도 자기 삶을 잘못 읽을 수 있음을 직접 경험한다고 했어요. ③은 거짓말이 아니라 자기기만이므로 틀려요.

126. ③ 작은 모순, 회피, 다른 인물들의 반응 같은 단서를 찾아 화자가 직접 말하지 않는 것을 밝혀내는 탐정 같은 읽기를 뜻해요.

127. ① 방출 이론이라면 부정적 감정이 줄어야 하는데 확실히 줄지 않았고, 대신 성찰과 유대감이 생겼어요. 그래서 이해 해석이 더 잘 맞는다는 거예요.

128. ② 약이 몸을 정화하듯 감정을 안전하게 방출한다는 비유예요.

129. ② 고통스럽더라도 참된 것을 배우는 즐거움, 즉 인간 삶의 연약함에 대한 통찰이 즐거움의 원천이라고 했어요.

130. ② 버크는 숭고가 공포에서 생기지만 실제 위험이 없을 때만 그렇다고 했어요. 배 위에서는 진짜 위험이라 그냥 두려울 뿐이에요.

131. ④ 칸트는 감각으로 파악할 수 없는 것 앞에서 무한을 생각하는 이성의 힘을 깨닫는다고 했어요. 숭고는 결국 우리 자신에 관한 것이라는 반전이에요.

132. ③ 숭고는 광대함에서 오는 불쾌함과 즐거움의 혼합이며 실제 위험이 없어야 해요. 안전하게 거대한 협곡을 보며 경외와 약간의 두려움을 느끼는 것이 맞아요. ④·①은 아름다움, ②는 실제 위험이에요.

133. ④ 인간처럼 보이지만 기계적으로 움직여 뇌가 분류하지 못하는 상충하는 단서가 불편함의 원인이라는 이론이에요.

134. ④ 사실성을 추구하다 약간 모자라면 불쾌한 골짜기에 빠지므로, 명백히 인공적인 만화 스타일이 더 좋아하기 쉽다고 했어요.

135. ② 어느 지점까지는 올라가다가, 거의 인간일 때 급격히 떨어지고, 실제 사람과 구별할 수 없을 때 다시 올라가는 골짜기 모양이에요.

136. ① 부서진 기둥이 그것이 떠받쳤던 신전을 떠올리게 하듯, 불완전함이 보는 사람이 빠진 것을 채우게 만들어요.

137. ③ 현대 폐허는 여전히 실제 공동체에 영향을 주는 최근의 경제적 재난을 나타낸다는 점에서 고대 폐허와 다르다고 했어요.

138. ② 계속되는 고난을 외부인을 위한 미적 구경거리로 바꾸는 것에 대한 윤리적 우려예요.

139. ③ 선배들을 의도적으로 오독하고 전통과 씨름함으로써 독창성을 얻는다고 했어요. 전통에서 벗어나는 것이 아니에요.

140. ② 영향이 독창성을 감소시킨다는 가정을 뒤집어, 가장 깊이 영향받은 시인이 가장 독창적일 수 있다고 했어요.

141. ② 문학을 소수 위대한 남성 간의 경쟁으로 묘사하며 정전 밖 작가들의 협력적·공동체적 관계를 무시한다는 것이 비판이에요.

142. ③ 작품은 가르쳐지고 재출간되고 논의되기 때문에 살아남는데, 이는 자기 사회적 위치를 반영하는 출판사·대학·비평가들에게 달려 있다고 했어요.

143. ① 과거의 배제가 질 판단이 무의미하다는 뜻이 아니라 더 넓고 정직하게 적용되어야 한다는 뜻이라고 응수해요.

144. ④ 정전은 최종 판결이 아니라 가치에 관한 진행 중인 논쟁이라고 결론지었어요.

145. ④ 고정된 텍스트를 외우지 않고 공연 중에 전통적 정형구를 이용해 작시한다는 것을 발견했어요.

146. ② 반복은 상상력의 결함이 아니라 살아 있는 구전 기예의 도구였다고 재평가되었어요.

147. ④ 아직 살아 있는 구전 전통을 관찰함으로써 글쓰기 없이 긴 시가 어떻게 지어질 수 있는지 증거를 얻었어요. 유비 추론이에요.

148. ④ 반란자를 단죄하려고 쓴 기록에서 반란자의 불만과 말투를 읽어 내듯, 작성자가 의도하지 않은 정보를 끌어내는 독법이에요.

149. ④ 어떤 기록이 없다는 것 자체가 누구의 삶이 기록할 가치가 있다고 여겨졌는지 알려 준다는 뜻이에요.

150. ① 글로 된 흔적을 거의 남기지 않은 삶을 복원하기 위해서라고 했어요. 문서가 항상 거짓이라는 것은 아니에요.

151. ④ 사례 선정은 역사가마다 다른 경쟁 관계를 세거나 다르게 분류할 수 있어 논란의 여지가 있다고 했어요.

152. ③ 핵무기가 강대국 전쟁의 비용을 극적으로 바꿔서 과거 패턴이 더 이상 적용되지 않을 수 있다는 반론이에요.

153. ④ 앨리슨은 전쟁이 불가피하지 않으며 전쟁을 피한 네 사례가 신중한 국정 운영으로 함정을 벗어날 수 있음을 보여 준다고 했어요.

154. ② 거짓이라는 뜻이 아니라, 서로 다 만나지 못할 구성원들의 마음속에 공유된 관념으로 존재한다는 점을 강조한 것이라고 했어요.

155. ② 지역 언어로 인쇄된 신문과 책이 같은 언어를 공유하며 같은 사건을 동시에 따라가는 독자 공동체를 만들었다고 했어요.

156. ② 많은 국가가 더 오래된 민족·종교 정체성에 기댔고, 인쇄는 그것을 발명한 것이 아니라 변형했다는 것이 비판이에요.

157. ② 유라시아는 많은 동물을 가축화해 수천 년간 동물에서 옮겨 온 질병에 노출되었고, 아메리카 원주민은 그런 면역이 없었기 때문이에요.

158. ④ 질병이 원주민 인구의 대다수를 죽여 정복을 군사력만으로 가능했을 것보다 훨씬 쉽게 만들었다고 했어요. ③은 본문에 없는 주장이에요.

159. ② 아메리카를 황폐하게 한 질병이 유라시아 농업사의 생물학적 결과였다고 했어요. 장기적인 농업 차이에 뿌리가 있다는 뜻이에요.

160. ④ 노동자가 많이 죽어 노동력이 부족해지자 남은 노동자의 협상력이 커졌어요. ③은 오히려 임금을 고정하려 했다는 본문과 반대예요.

161. ③ 같은 노동력 부족이 동유럽에서는 오히려 통제 강화로 이어졌다는 대조로, 결과가 지역의 지주·농민 간 힘의 관계에 달려 있었음을 보여 줘요.

162. ③ 마지막 문장처럼 인구학적 충격이 결과를 스스로 결정하지 않고 지역의 힘의 관계에 달려 있었다는 것이 요지예요. ①은 정반대예요.

163. ③ 당시의 교훈적 소책자와 그것을 무비판적으로 반복한 19세기 책에서 나왔다고 했어요. ①은 오히려 과장을 바로잡은 자료예요.

164. ③ 경제가 파탄 났다는 주장은 이후 수십 년 동안 계속 번영했다는 사실과 정면으로 충돌해요.

165. ① 탐욕에 관한 생생한 도덕적 교훈을 주고, 인간의 어리석음에 대한 기존 믿음을 확인해 주는 이야기라 더 자주 반복된다고 했어요.

166. ④ 포머랜즈는 장기적 문화 우월성이 아니라 석탄 위치와 식민지라는 지리·제국의 우연적 요인을 강조했어요.

167. ① 식민지가 식량, 면화, 목재를 공급해 영국의 제한된 토지에 대한 압박을 덜어 주었다고 했어요. 석탄은 영국 국내 매장지예요.

168. ③ 1750년경 두 지역이 비슷하게 번영했다면, 이후의 격차는 오래된 차이가 아니라 그 뒤의 요인 때문이라는 주장을 뒷받침해요.

169. ④ 구원에 대한 불안이 근면한 노동과 성공에서 징표를 찾게 했고, 사치 금지로 이윤을 재투자하는 습관이 생겼다고 했어요.

170. ① 개신교 지역이 더 번영한 것은 사실이지만, 그 원인을 노동 윤리가 아니라 성경 읽기로 인한 높은 문해율에서 찾았어요.

171. ④ 가톨릭 지역에서 자본주의가 더 일찍 번성했다면 개신교가 자본주의 발전에 필수적이었다는 주장이 약해져요.

172. ④ 왕과 귀족 사이의 평화 조약으로 주로 귀족의 봉건적 특권에 관한 것이었다고 했어요. ③은 후대의 해석이에요.

173. ① 17세기 법률가들이 한 조항을 적법 절차의 일반적 보장으로 읽었고, '자유인'이 점차 모든 사람에게 적용되도록 이해되었어요.

174. ② 문서의 의미가 작성자의 의도를 훨씬 넘어 자라날 수 있다는 것이 요지예요. ①은 지나친 결론이에요.

175. ② 상형 문자가 순전히 관념만 나타낸다는 잘못된 가정이 주요 장애물이었다고 했어요. ①은 학자들이 그리스어를 읽을 수 있었다는 본문과 반대예요.

176. ② 이집트어의 후기 형태인 콥트어를 알았기 때문에 많은 기호가 소리를 나타낸다는 것을 깨달을 수 있었어요.

177. ③ 올바른 증거가 있어도 아무도 의문을 제기하지 않는 가정 때문에 진전이 막힐 수 있다는 것이 교훈이에요.

178. ④ 초기 농부의 유골은 더 작은 키, 충치, 영양 스트레스와 감염병 증거로 수렵 채집인보다 건강이 나빴음을 보여 줘요.

179. ③ 작은 단계마다 즉각적 이익이 있었고, 인구가 추가 식량에 의존하게 되자 채집으로 돌아갈 수 없었다고 했어요.

180. ④ 더 많은 사람이 살게 한 것(인구 전체의 이익)과 평균적인 개인의 더 힘든 삶(개인의 삶의 질)을 구분해요.

181. ④ 스무 개 넘는 연구실이 표준화된 절차로 대규모 검증을 했는데 효과가 0에 가까웠다는 점에서 중요해요.

182. ① 의지력이 제한되어 있다고 믿는 사람이 고갈을 더 보인다면, 그 이론(믿음)이 현상을 부분적으로 만들어 냈을 수 있다는 뜻이에요.

183. ④ 출판 편향은 긍정적 결과만 출판되고 효과 없는 연구는 묻히는 경향이에요. ③은 믿음에 따른 설명이에요.

184. ③ 값싸고 짧은 개입의 작은 효과도 많은 학생에게 적용되면 가치 있을 수 있다고 했어요.

185. ③ 학습으로 이어지지 않는 노력을 칭찬하거나 그냥 '더 노력해라'라고 말하는 단순화된 버전을 비판했어요.

186. ② 작은 평균 향상이 주로 성취도가 낮은 학생들에게 집중되었다고 했어요.

187. ① 가정 소득과 초기 인지 능력을 고려하자 연관성이 더 줄었어요. 배경 요인이 원래 연관성의 일부를 설명한다는 뜻이에요.

188. ② 예측 불가능한 환경에서 어른이 약속을 지키지 않는다면, 올지 모를 보상을 기다리는 것보다 지금 먹는 것이 합리적일 수 있어요.

189. ③ 실험이 성격(자기 통제)만큼 환경도 측정한다는 것은 기다림이 삶의 환경을 반영할 수 있다는 뜻이에요.

190. ④ 질문 표현만 바꿨는데 속도 추정이 달라지고 없던 깨진 유리를 봤다고 보고했어요. 사후 질문 표현이 기억을 바꿀 수 있다는 증거예요.

191. ① 질문 표현과 사후 정보가 기억을 바꿀 수 있으므로, 특정 세부를 암시하지 않는 중립적 질문이 왜곡을 줄여요. ②는 확신이 정확성을 보장하지 않는다는 본문과 어긋나요.

192. ④ 확신은 정확성을 보장하지 않으며 거짓 기억도 완전히 확신할 수 있다는 뜻이에요. ①·②는 과장이에요.

193. ③ 1달러로는 거짓말을 정당화할 수 없어서, 과제에 대한 믿음을 바꿔(재미있었다고 믿어) 부조화를 줄였어요.

194. ③ 큰 대가(힘든 입회 과정)를 치른 사람은 그것이 가치 없었다고 인정하기 어려워 더 충성스러워져요. 부조화 감소의 예예요.

195. ④ 믿음이 증거뿐 아니라 자기 행동을 분별 있는 것으로 보려는 욕구로도 형성된다고 했어요. 이미 한 일을 정당화하려고 믿음을 조정한다는 뜻이에요.

196. ④ 더 큰 만족을 향해 계속 달리지만 적응 때문에 대략 같은 자리에 머문다는 비유예요. ③은 '분출'이 있다는 본문과 어긋나요.

197. ④ 경험과 관계는 계속 다양성을 제공하지만, 소유물은 고정된 상태라 금세 눈에 띄지 않는 배경이 된다고 했어요.

198. ① 많은 불행에서 예상보다 잘 회복하지만, 실직이나 배우자 상실 뒤에는 완전히 돌아가지 못하는 경우가 많다고 했어요.

199. ④ 상승이 유전적 변화로 설명하기에는 너무 빠르다고 했어요. ①은 지나친 진술이에요.

200. ① 농부는 실제 관계(개가 토끼를 사냥)로, 현대 학생은 추상적 범주(포유류)로 답한다는 대비로 사고방식의 변화를 보여 줘요.

201. ③ 추상적 추론에서 가장 많이 오르고 어휘·산수에서는 덜 올랐다는 패턴은, 단순히 더 똑똑해진 것이 아니라 생각하는 방식이 바뀌었다는 주장을 뒷받침해요.

202. ③ 의식적으로 인식하지 못했는데도 호감이 생겼다면, 효과가 이전 노출을 의식적으로 기억하는 데 의존하지 않는다는 뜻이에요.

203. ② 이미 싫어하는 것에 반복 노출되면 싫음이 강해질 수 있다고 했어요.

204. ② 노출은 중립적인 것의 호감을 가장 높이고, 과도한 반복은 지루함을 부르며, 싫어하는 것은 반복할수록 싫어진다고 했어요. 적당한 반복이 합리적이에요.

205. ② 원래 고르지 않은 사진에만 있는 귀걸이를 이유로 댔다면, 설명이 실제 선택 이유가 아니라 눈앞의 사진을 보고 사후에 만든 것이라는 증거예요.

206. ② 선택 이유가 실제로 결정을 이끈 것의 보고가 아니라 사후에 구성된 것일 수 있다는 것이 함의예요.

207. ① 얼굴이나 잼 같은 사소한 선호뿐 아니라 정치적 의견에서도 나타났다는 것은 이 현상이 넓게 적용된다는 뜻이에요.

208. ① 멀티태스킹이 약점을 일으키는지, 원래 산만한 사람이 멀티태스킹에 끌리는지 인과 방향을 알 수 없다는 뜻이에요.

209. ④ 걷기처럼 한 활동이 고도로 자동적일 때는 잘 작동한다고 했어요. 나머지는 같은 정신적 자원(언어 처리)을 두고 경쟁해요.

210. ④ 스스로 능숙하다고 평가하지만 수행은 반대이므로, 자신의 멀티태스킹 능력을 과대평가할 수 있다는 뜻이에요.

211. ① 아이들이 듣는 입력이 그들이 아는 것을 설명하기에 부족하므로 선천적 보편 문법이 있어야 한다는 것이 핵심이에요. ③은 교정을 거의 받지 않는다는 본문과 반대예요.

212. ② 모델이 아이가 받는 것보다 훨씬 많은 데이터가 필요하므로 아이들의 학습을 설명하지 못한다고 응수해요.

213. ② 논쟁이 아이들이 실제로 받는 입력에서 얼마나 배울 수 있는지라는 경험적 질문으로 귀결된다고 했어요.

214. ③ 아이들은 학교와 친구들 속에서 몰입하지만 어른들은 모국어를 계속 써서, 노출 차이가 생물학적 요인과 섞여 있기 때문이에요.

215. ① 어른들이 처음에는 아이들보다 더 빨리 배우고 장기적으로만 아이들이 앞선다는 점이 단순한 주장을 복잡하게 만들어요.

216. ② 나이는 분명히 중요하지만 생물학과 노출의 비중은 여전히 열린 질문이라고 결론지었어요.

217. ② 피진은 누구의 모국어도 아닌 단순화된 접촉 언어이고, 크리올은 아이들이 자라며 만든 일관된 문법을 갖춘 완전한 모국어예요.

218. ③ 원천 언어가 다른데도 문법이 비슷하다면, 아이들이 언어를 만들 때 자기 나름의 문법적 경향을 가져온다는 시사가 돼요.

219. ③ 크리올은 옛 언어의 망가진 버전이 아니라 화자들이 만든 완전한 체계라고 했어요.

220. ④ 언어는 보통 화자의 죽음이 아니라 부모가 경제적 기회를 위해 더 널리 쓰이는 언어를 택하면서 아이에게 물려주지 않는 점진적 전환으로 사라진다고 했어요.

221. ① 부활이 어렵지만 불가능하지 않다는 것을 보여 주는 성공 사례예요.

222. ④ 고유한 지역 지식, 문법 범위에 대한 증거, 정체성과의 연결은 모두 언급되었지만 '모든 언어가 똑같이 배우기 쉽다'는 언급되지 않았어요.

223. ③ 18~19세기 문법학자들이 그런 구문이 불가능한 라틴어를 모방해 만든 것이라고 했어요. 숙련된 작가들은 오히려 전치사로 끝내 왔어요.

224. ② 규범주의는 어떻게 '해야 하는지', 기술주의는 실제로 어떻게 '하는지'를 다뤄요.

225. ② 명확성을 돕는 관습과 일부 화자를 우월하게 표시하는 자의적 규칙을 구분하는 것이 유용하다고 했어요.

226. ③ 즉시 시험에서는 다시 읽기가 약간 나았지만 일주일 뒤에는 연습 시험 집단이 훨씬 나았어요. 인출 연습이 장기 기억에 가치가 있다는 걸 보여 줘요.

227. ② 다시 읽기가 숙달로 착각하는 친숙함을 만들어 내기 때문이라고 했어요.

228. ② 노트를 가리고 기억나는 것을 써 본 뒤 확인하는 것이 기억에서 정보를 끌어내는 인출 연습이에요. 나머지는 수동적 재노출이에요.

229. ③ 어느 정도 잊은 뒤 돌아와 재구성하는 노력이 기억을 강화한다고 했어요. 총 시간은 같다고 했으므로 ①은 틀려요.

230. ④ 필요한 기억 유지 기간이 길수록 간격도 길어야 한다고 했어요. 1년 동안 기억하려면 몇 달에 걸쳐 비교적 긴 간격으로 복습해야 해요.

231. ④ 한 주제를 집중 연습하고 넘어가 이전 내용으로 거의 돌아오지 않아 간격 효과를 활용하지 못한다는 비판이에요.

232. ① 묶음 연습은 방법을 미리 알려 주지만, 섞어 풀면 어떤 방법이 필요한지 스스로 알아봐야 해서 실제 시험처럼 문제 유형을 식별하는 능력이 길러져요.

233. ③ 어려움은 학습자가 결국 극복할 수 있을 때만 도움이 되며, 그저 너무 어려우면 혼란만 낳는다고 했어요.

234. ④ 실제 시험에서는 문제 유형이 표시되지 않으므로, 미리 방법을 알려 주는 묶음 연습은 실제 시험에 대비시키지 못한다는 점을 뒷받침해요.

235. ② 같은 유형의 학습자를 맞는/맞지 않는 방식에 무작위로 배정해 비교해야 맞춤 자체가 학습을 개선하는지 보여 줄 수 있어요.

236. ③ 방법을 내용에 맞추는 것이 중요하다고 했어요. 지도는 시각적으로, 발음은 듣기로 배우는 것이 모두에게 좋다는 예를 들었어요.

237. ③ 사람들은 선호가 있고 그렇게 믿을 수 있지만, 그 선호에 맞춘 교육이 결과를 개선하지 않는다고 했어요. ②는 선호 자체는 인정한 본문과 어긋나요.

238. ④ 말은 자연스럽게 습득되지만 읽기는 가르쳐야 하는 최근의 발명품이라는 대비로, 노출만으로는 부족하고 명시적 교육이 필요하다는 것을 시사해요. 이는 '총체적 언어'의 전제를 약화해요.

239. ① 그림으로 추측하는 전략은 텍스트가 어려워지고 그림이 사라지면 약한 독자를 전략 없이 남겨 둔다고 했어요.

240. ③ 해독 능력은 이해에 꼭 필요하지만 그것만으로 이해가 보장되지는 않는다는 뜻이에요. 그래서 어휘·배경지식·읽기와 결합해야 해요.

241. ③ 판결은 원래 기사 삭제를 요구하지 않고, 그 사람 이름의 검색 결과에서 링크만 삭제하라고 했어요.

242. ③ 정보는 기록 보관소에 계속 존재하지만, 이름 검색에서 처음 보이는 것은 아니게 되어 쉽게 찾아지지 않는다는 구분이에요.

243. ④ 비판자들은 대중이 알 정당한 이익이 있는 정보, 예컨대 정치인의 과거 행적을 숨기는 데 쓰일까 우려해요. 재직 중 비위 보도 링크를 지우는 것이 그 예예요.

244. ① 인터넷을 가장 적게 쓰는 노년층에서 양극화가 가장 빨리 늘었다면, 소셜 미디어가 주된 원인이라는 주장과 충돌해요.

245. ③ 반대 견해에 노출되는 것이 때로 태도를 누그러뜨리기보다 굳힐 수 있다고 했어요.

246. ④ 필터 버블은 우려보다 덜 심각할 수 있고, 문제는 보이는 것보다 반응 방식에 있을 수 있다는 결론이에요. ②는 '무해하다는 뜻은 아니다'와 어긋나요.

247. ③ 해야 할 일의 양이 고정되어 있다는 잘못된 가정이라고 정의했어요.

248. ③ AI가 이전에는 밀려난 노동자들의 피난처였던 인지적 업무를 대체할 수 있어서 역사적 패턴을 따르지 않을 수 있다는 거예요.

249. ① 전체적으로는 영구적 대량 실업이 없었지만, 개별 노동자는 오랜 저임금을 겪거나 회복하지 못할 수 있다고 구분해요.

250. ④ 기업들이 공유 소프트웨어에 스스로 의존하기 때문이라고 했어요.

251. ① 중요한 소프트웨어가 한두 명의 무급 자원봉사자에게 의존해, 그들이 지치거나 결함을 놓치면 수백만 명이 위험해질 수 있다고 했어요. ②는 과장이에요.

252. ③ 코드가 잠재적 고용주에게 보여 일자리 제안으로 이어지는 평판을 얻는 것이 고용과 직접 관련된 동기예요.

253. ① 먼 미래에 받을 돈은 오늘의 가치가 매우 작아서, 창작을 결정하는 시점의 유인에 거의 아무것도 더하지 않는다는 논리예요.

254. ① 여전히 저작권이 있지만 소유자를 찾을 수 없어 아무도 합법적으로 쓸 수 없는 작품이에요.

255. ② 일시적 독점으로 창작자에게 보상하는 것과 만료 후 사회가 자유롭게 쓰게 하는 것 사이의 맞바꿈이에요.

256. ③ 신약 개발에는 막대한 비용이 들지만 베끼는 것은 쉬워서, 보호가 없으면 연구 투자가 사라질 위험이 가장 크기 때문이에요.

257. ① 특허 없는 나라도 덜 혁신적이지 않았지만 발명이 비밀 유지가 쉬운 분야에 집중되었다고 했어요. 특허가 양보다 방향에 영향을 준다는 뜻이에요.

258. ③ 아무것도 생산하지 않고 소송으로 이익을 얻으려 특허를 사들이므로, 특허가 혁신 대신 소송 도구로 쓰이는 문제를 보여 줘요.

259. ③ 모호한 방침, 보이지 않는 결과, 필수 서비스를 포기해야 하는 상황 같은 조건이 행동을 만든다는 설명이에요.

260. ② 저항이 소용없어 보여 포기하고 동의하는 것으로, 무관심 때문이 아니라는 점이 핵심이에요.

261. ① 개인 교육보다 선택을 구조화하는 규칙을 바꾸는 것이 사생활 보호에 더 중요할 수 있다고 했어요.

262. ① 가짜가 가능하다는 인식을 이용해 진짜 증거를 조작이라고 주장하는 사람이 얻는 이득이에요.

263. ② 딥페이크를 알리면 의심을 정당화하기 쉬워져 진짜 증거도 의심받을 수 있다는 역설이에요.

264. ③ 녹음 순간에 진본을 증명할 수 있어, '가짜다'라는 거짓 주장에 대응할 수 있기 때문이에요. 진짜를 증명하는 것이 중요해진다는 결론과 연결돼요.

265. ① 행동이 명시적 지시가 아니라 학습에서 생겨나므로 프로그래머가 예견하기 어려워 책임을 묻기가 더 어렵다는 거예요.

266. ① 엄격 책임이 결국 사고를 크게 줄일 수도 있는 기술의 개발을 위축시킬 수 있다는 우려예요.

267. ① 해가 발생했지만 그것을 일으킨 결정을 내린 단 한 명의 인간이 없는 상황이라고 정의했어요.

268. ② 재판을 고집하면 수십 년 징역 위험이 있으므로, 무고해도 더 가벼운 혐의를 인정하는 것이 합리적인 선택이 될 수 있어요.

269. ① 나중에 DNA 증거로 무죄가 밝혀진 사람들 중 상당수가 유죄를 인정했었다는 연구를 들었어요.

270. ② 피고인이 재판을 고집할 때 위협받는 훨씬 가혹한 형량을 말해요.

271. ② 표본이 매우 크면 작은 차이도 우연만으로는 나오기 어려워져 유의하게 나와요. 유의성은 효과 크기를 재는 것이 아니에요.

272. ① 효과 크기(평균 8포인트)와 신뢰 구간(6~10)을 함께 보고하는 것이 가장 유익하다고 했어요.

273. ① 중요한 효과도 데이터가 적어 유의성에 도달하지 못할 수 있으므로, 유의하지 않다고 효과가 없다는 것이 증명되지는 않아요.

274. ④ 건강한 사람이 압도적으로 많아서 1%의 오류만으로도 거짓 양성(약 천 명)이 진짜 양성(약 백 명)보다 훨씬 많아져요. 검사 정확도가 9%라는 뜻이 아니에요.

275. ② 병이 흔해지면 진짜 양성이 늘어 전체 양성 중 비율이 커지므로 양성이 맞을 확률도 올라가요. 기저율이 결과에 영향을 준다는 것이 핵심이에요.

276. ② 드문 질환에서는 정확한 검사도 오경보가 많아 첫 양성이 거짓일 가능성이 높으므로 독립적인 두 번째 검사로 확인해요.

277. ④ 여성이 대부분을 떨어뜨리는 경쟁적 학과에 더 많이 지원해 전체 합격률이 낮아졌어요. 학과별로는 여성 합격률이 같거나 약간 높았으므로 ③·②는 틀려요.

278. ④ 중증·경증 각각에서는 사망률이 낮은데 합치면 높아지는 것은 집단별 추세가 합산 시 뒤집히는 심프슨의 역설이에요. 중증 환자를 더 많이 받아서 생긴 결과예요.

279. ③ 어떤 분석 수준이 옳은지는 역설 자체가 알려 주지 않으며, 무엇이 무엇을 일으키는지 이해해야 한다고 했어요.

280. ④ 극단적 수행 뒤에는 피드백과 관계없이 평균에 가까운 수행이 오는데(회귀), 그것을 칭찬·비판의 효과로 착각했어요.

281. ③ 작년에 사고가 유난히 많았던 곳은 운도 나빴을 가능성이 커서, 카메라가 없어도 사고가 줄었을 수 있어요. 개선을 카메라 공으로 돌리는 착각이 생기기 쉬워요.

282. ② 결과가 부분적으로 우연에 달려 있고, 극단적 결과에 섞인 이례적인 운은 반복되기 어렵기 때문이라고 했어요.

283. ③ 1에서 2로 가려면 두 배가 되어야 하지만 9에서 10은 약 11%만 늘면 되므로, 곱셈으로 증가하는 데이터는 첫 자리 1에 더 오래 머물러요.

284. ④ 숫자를 지어내는 사람은 첫 자리를 너무 고르게 분포시켜 예상 패턴에서 벗어나기 때문이에요. ①은 '증거가 아니라 조사의 이유'라는 본문과 어긋나요.

285. ④ 사람의 키처럼 범위가 고정된 데이터는 이 법칙을 따르지 않는다고 했어요. 나머지는 여러 자릿수에 걸쳐 있는 데이터예요.

286. ③ 환자에게 부작용을 알릴 의무가 있지만, 나열하는 행위 자체가 부작용 발생을 늘릴 수 있다는 딜레마예요.

287. ③ 꾸며낸 것이 아니라 불안과 주의가 진짜 신체 감각을 만들거나 증폭한다는 의미예요.

288. ① 위험을 숨기지 않되 대부분이 잘 견딘다는 점을 강조하는 신중한 틀 짓기를 제안했어요.

289. ④ 보도를 지켜보는 가게 주인과 주민들이 '거리의 눈'이 되어 경찰 없이도 안전하게 만들었다고 했어요.

290. ② 인기가 높아져 임대료가 오르면 동네를 활기차게 만든 작은 가게와 다양한 주민이 밀려나는 역설이에요.

291. ④ 오래되고 저렴한 건물이 작은 신생 사업이 시작될 수 있게 했다고 했어요.

292. ② 그 전술을 쓰지 않은 도시에서도 범죄가 줄었다면 뉴욕의 감소를 그 정책만의 공으로 볼 수 없어요. 다른 요인의 가능성을 보여 줘요.

293. ④ 체포 없이 물리적 무질서를 정리한 것이 폭력 감소와 연관되었다는 실험이 좁은 버전을 뒷받침해요.

294. ① 물리적 무질서 해결은 도움이 되지만, 무질서 대응을 체포와 동일시하는 것은 오독이라고 결론지었어요.

295. ③ 서로 영향을 받지 않아야 서로 다른 방향의 오류가 상쇄되는데, 영향을 주고받으면 오류가 같은 방향으로 쏠려 상쇄되지 않아요.

296. ② 다른 추정치를 보자 공통 답으로 수렴하며 자신감은 커졌지만 정확도는 나아지지 않고 때로 나빠졌어요.

297. ① 토론 전에 각자 비공개로 기록하게 하면 집단의 영향이 끼어들기 전에 판단의 독립성을 보존할 수 있어요.

298. ③ 차이는 무엇을 알았느냐가 아니라 어떻게 생각했느냐, 즉 다양한 원천에 기대고 생각을 바꾸는 태도에 있었다고 했어요.

299. ② 자신감 있고 단순한 이야기가 더 좋은 방송거리가 되기 때문이라고 했어요. ③은 본문과 반대예요.

300. ② 여우처럼 생각하도록 훈련받은 평범한 사람들이 전문가를 능가했다는 것은 좋은 예측이 배울 수 있는 기술이라는 뜻이에요.

해석 · What We Know but Cannot Tell

The chemist and philosopher Michael Polanyi summarized a puzzling fact about human expertise in a single phrase: we know more than we can tell.
화학자이자 철학자인 마이클 폴라니는 인간 전문성에 관한 이해하기 어려운 사실을 한 문장으로 요약했다. 우리는 말할 수 있는 것보다 더 많이 안다.

A person can recognize a friend's face among thousands yet be unable to say which features made recognition possible.
사람은 수천 명 중에서 친구의 얼굴을 알아볼 수 있지만 어떤 특징이 그것을 가능하게 했는지는 말하지 못할 수 있다.

A skilled cyclist keeps her balance by making constant adjustments that she could not describe and would probably get wrong if she tried.
숙련된 자전거 타는 사람은 끊임없이 미세하게 조정하며 균형을 유지하는데, 그녀는 그 조정을 설명할 수 없고 설명하려 하면 아마 틀리게 말할 것이다.

Polanyi called this kind of understanding tacit knowledge, and he argued that it underlies even the most explicit sciences.
폴라니는 이런 종류의 이해를 암묵지라고 불렀고, 그것이 가장 명시적인 과학의 밑바탕에도 깔려 있다고 주장했다.

A laboratory procedure written in perfect detail is often useless to a newcomer until someone who has performed it shows how it is actually done.
완벽하게 상세히 쓰인 실험 절차도 그것을 수행해 본 누군가가 실제로 어떻게 하는지 보여 주기 전까지는 초보자에게 쓸모없는 경우가 많다.

This helps explain why apprenticeships have survived in fields as different as surgery, carpentry, and scientific research.
이것은 수술, 목공, 과학 연구처럼 서로 매우 다른 분야에서 도제 제도가 살아남은 이유를 설명하는 데 도움이 된다.

It also explains a persistent difficulty in automation.
그것은 또한 자동화의 지속적인 어려움을 설명한다.

Tasks that humans find effortless, such as folding laundry or understanding a joke, have proved far harder to program than tasks we find difficult, such as calculating tax.
빨래를 개거나 농담을 이해하는 것처럼 사람에게는 수월한 일이, 세금을 계산하는 것처럼 우리가 어렵다고 여기는 일보다 프로그램하기가 훨씬 어려운 것으로 드러났다.

The reason is not that the easy tasks are simple, but that the rules guiding them were never made explicit, even to the people who follow them.
그 이유는 쉬운 일이 단순해서가 아니라, 그것을 이끄는 규칙이 그 규칙을 따르는 사람들에게조차 결코 명시적으로 드러난 적이 없기 때문이다.

해석 · Knowing It All Along

After an election, a war, or a financial crash, commentators often explain why the outcome was inevitable.
선거, 전쟁, 금융 붕괴가 있은 뒤 논평가들은 흔히 그 결과가 왜 필연적이었는지 설명한다.

The warning signs, they say, were obvious to anyone paying attention.
그들은 경고 신호가 주의를 기울이는 사람이라면 누구에게나 분명했다고 말한다.

Psychologists have shown that this confidence is largely an illusion created by knowing the result.
심리학자들은 이 확신이 대체로 결과를 안 데서 생겨난 착각임을 보여 주었다.

In one classic study, people were asked to estimate the likelihood of various outcomes of a diplomatic trip before it happened, and then, afterward, to recall their original estimates.
한 고전적 연구에서 사람들은 어떤 외교 순방이 일어나기 전에 여러 결과의 가능성을 추정하고, 그 뒤 원래 추정치를 회상하라는 요청을 받았다.

They consistently remembered having assigned higher probabilities to the events that had actually occurred.
그들은 실제로 일어난 사건에 더 높은 확률을 매겼다고 일관되게 기억했다.

Once we learn an outcome, our memory of what we used to believe is quietly revised, and the alternatives that once seemed plausible fade from view.
결과를 알게 되면 우리가 예전에 믿었던 것에 대한 기억은 조용히 수정되고, 한때 그럴듯해 보였던 대안들은 시야에서 사라진다.

This hindsight bias has practical costs.
이 사후 확신 편향에는 실제 비용이 따른다.

Doctors reviewing a colleague's misdiagnosis may judge it careless because they already know the correct diagnosis, and juries may punish decisions that were reasonable given what was known at the time.
동료의 오진을 검토하는 의사들은 이미 올바른 진단을 알기 때문에 그것을 부주의하다고 판단할 수 있고, 배심원들은 당시 알려진 바로는 합리적이었던 결정을 처벌할 수 있다.

Worse, if every past event looks predictable, we learn too little from our mistakes and come to overrate our ability to foresee the next surprise.
더 나쁜 것은, 모든 과거 사건이 예측 가능해 보이면 우리는 실수에서 너무 적게 배우고 다음 뜻밖의 일을 내다보는 능력을 과대평가하게 된다는 점이다.

해석 · The Cost of Making a Deal

Why do firms exist at all?
기업은 도대체 왜 존재하는가?

If markets allocate resources efficiently, one might expect every task to be bought and sold individually, with no need for large organizations that direct workers by command.
시장이 자원을 효율적으로 배분한다면, 모든 일이 개별적으로 사고팔리고 명령으로 노동자를 지휘하는 큰 조직은 필요 없을 것이라고 예상할 수도 있다.

In 1937 the economist Ronald Coase offered an answer that later earned him a Nobel Prize.
1937년 경제학자 로널드 코스는 나중에 그에게 노벨상을 안겨 준 답을 내놓았다.

Using the market is not free.
시장을 이용하는 것은 공짜가 아니다.

One must find suitable partners, negotiate prices, write contracts, and monitor whether promises are kept, all of which consume time and money.
적합한 상대를 찾고, 가격을 협상하고, 계약서를 쓰고, 약속이 지켜지는지 감시해야 하며, 이 모든 것이 시간과 돈을 소모한다.

When these transaction costs are high, it becomes cheaper to bring activities inside a firm, where a manager can simply assign tasks instead of bargaining over each one.
이러한 거래 비용이 높을 때는 활동을 기업 내부로 들여오는 것이 더 싸지는데, 거기서는 관리자가 일마다 흥정하는 대신 그냥 업무를 배정할 수 있다.

But internal organization has costs of its own, such as bureaucracy and the difficulty of managing many activities at once.
그러나 내부 조직에도 관료주의나 많은 활동을 한꺼번에 관리하기 어렵다는 것과 같은 고유한 비용이 있다.

A firm therefore grows until the cost of organizing one more activity internally equals the cost of buying it on the market.
따라서 기업은 활동 하나를 더 내부에서 조직하는 비용이 그것을 시장에서 사는 비용과 같아질 때까지 성장한다.

The theory predicts that when technology lowers the cost of finding and contracting with outsiders, firms will rely more on outsourcing and freelancers, a shift that much of the recent economy seems to confirm.
이 이론은 기술이 외부인을 찾고 계약하는 비용을 낮추면 기업이 외주와 프리랜서에 더 의존할 것이라고 예측하는데, 최근 경제의 상당 부분이 이 변화를 확인해 주는 것 같다.

해석 · When Saving Hurts

For an individual household, saving more is almost always prudent: it builds a cushion against misfortune and provides for the future.
개별 가계에 있어 더 많이 저축하는 것은 거의 언제나 신중한 일이다. 그것은 불행에 대비한 완충 장치를 만들고 미래를 대비하게 해 준다.

Yet the economist John Maynard Keynes pointed out that what is wise for each household may be harmful for an economy as a whole.

그러나 경제학자 존 메이너드 케인스는 각 가계에 현명한 것이 경제 전체에는 해로울 수 있다고 지적했다.

One person's spending is another person's income.
한 사람의 지출은 다른 사람의 소득이다.

If, during a recession, everyone simultaneously cuts spending to save more, businesses sell less, lay off workers, and reduce their own purchases.
경기 침체 동안 모든 사람이 더 저축하기 위해 동시에 지출을 줄이면, 기업은 덜 팔고, 노동자를 해고하며, 자신의 구매를 줄인다.

Incomes fall throughout the economy, and households may end up saving no more than before, or even less, because they now have less to save from.
경제 전반에서 소득이 떨어지고, 가계는 이제 저축할 원천이 줄었기 때문에 결국 이전보다 더 저축하지 못하거나 오히려 덜 저축하게 될 수 있다.

This is the paradox of thrift.
이것이 절약의 역설이다.

It illustrates a broader error known as the fallacy of composition: assuming that what is true of each part must be true of the whole.
그것은 구성의 오류라고 알려진 더 넓은 오류를 보여 준다. 각 부분에 참인 것은 전체에도 참이어야 한다고 가정하는 것이다.

A single spectator who stands up at a concert sees better, but if everyone stands, no one does.
콘서트에서 혼자 일어선 관객은 더 잘 보지만, 모두가 일어서면 아무도 더 잘 보지 못한다.

The paradox does not imply that saving is bad; it applies mainly when an economy has idle workers and factories, and it is one reason governments sometimes spend more precisely when private citizens are spending less.
이 역설은 저축이 나쁘다는 뜻이 아니다. 그것은 주로 경제에 놀고 있는 노동자와 공장이 있을 때 적용되며, 정부가 때때로 바로 민간이 지출을 줄일 때 더 지출하는 이유 중 하나다.

해석 · Throwing Good Money After Bad

Economists teach that past costs that cannot be recovered should be ignored when making decisions.
경제학자들은 회수할 수 없는 과거 비용은 결정을 내릴 때 무시해야 한다고 가르친다.

If you have paid for a concert ticket and wake up with a fever, the money is gone whether or not you go; the only question is whether attending will make you better off now.
콘서트 표를 샀는데 열이 나서 깼다면, 가든 가지 않든 그 돈은 이미 사라졌다. 유일한 질문은 지금 가는 것이 당신을 더 낫게 만드느냐이다.

People frequently violate this rule, continuing failing projects because they have already invested so much in them.
사람들은 이미 너무 많이 투자했다는 이유로 실패하는 사업을 계속하면서 이 규칙을 자주 어긴다.

Governments complete useless bridges and companies keep funding doomed products, a pattern known as the sunk cost fallacy.
정부는 쓸모없는 다리를 완공하고 기업은 실패할 운명의 제품에 계속 자금을 대는데, 이 패턴을 매몰 비용의 오류라고 한다.

Some researchers, however, argue that the behavior is not always irrational.
그러나 일부 연구자들은 그 행동이 항상 비합리적인 것은 아니라고 주장한다.

A manager who abandons a project may signal to others that her earlier judgment was poor, damaging her reputation and future influence.
사업을 포기하는 관리자는 자신의 이전 판단이 형편없었다는 신호를 다른 사람들에게 보내 자신의 평판과 미래의 영향력을 해칠 수 있다.

A person who quits every difficult commitment as soon as it becomes costly may also find that others stop trusting her promises.
어려운 약속이 비용이 들기 시작하자마자 매번 그만두는 사람은 다른 사람들이 그녀의 약속을 더 이상 믿지 않게 된다는 것도 알게 될 수 있다.

In such cases, the past investment still matters, not because the money can be recovered, but because walking away carries new costs of its own.
그러한 경우 과거 투자는 여전히 중요한데, 그 돈을 회수할 수 있어서가 아니라 손을 떼는 것 자체가 새로운 비용을 수반하기 때문이다.

The lesson is subtle: sunk costs themselves should be ignored, but the consequences of ignoring them publicly may not be.
교훈은 미묘하다. 매몰 비용 자체는 무시해야 하지만, 그것을 공개적으로 무시했을 때의 결과는 무시하지 않아야 할 수도 있다.

해석 · Behind the Veil

Imagine designing the basic rules of a society without knowing what position you will occupy in it.
사회 안에서 당신이 어떤 위치를 차지하게 될지 모른 채 그 사회의 기본 규칙을 설계한다고 상상해 보라.

You do not know whether you will be rich or poor, healthy or disabled, talented or ordinary, or which religion you will hold.
당신은 부자일지 가난할지, 건강할지 장애가 있을지, 재능이 있을지 평범할지, 어떤 종교를 가질지 알지 못한다.

The philosopher John Rawls proposed this thought experiment, which he called the veil of ignorance, as a way to identify principles of justice that are fair to everyone.
철학자 존 롤스는 모든 사람에게 공정한 정의의 원칙을 찾아내는 방법으로 이 사고 실험을 제안했고, 그것을 무지의 베일이라고 불렀다.

Because no one can design rules to favor themselves, the choices made behind the veil cannot be biased toward any particular group.
아무도 자신에게 유리하게 규칙을 설계할 수 없기 때문에, 베일 뒤에서 내린 선택은 어느 특정 집단에도 치우칠 수 없다.

Rawls argued that rational people in this situation would guarantee equal basic liberties and would permit economic inequalities only if they benefit the least advantaged members of society.
롤스는 이 상황에 놓인 합리적인 사람들은 동등한 기본적 자유를 보장할 것이며, 경제적 불평등은 그것이 사회의 가장 불리한 구성원에게 이익이 될 때에만 허용할 것이라고 주장했다.

Since you might turn out to be among the worst off, you would want that position to be as good as possible.
당신이 가장 어려운 처지에 놓이게 될 수도 있으므로, 당신은 그 위치가 가능한 한 좋기를 원할 것이다.

Critics have questioned this reasoning.
비판자들은 이 추론에 의문을 제기해 왔다.

Some argue that people behind the veil might be willing to gamble, accepting a small risk of hardship for a large chance of prosperity, much as people do when they start businesses.
어떤 이들은 베일 뒤의 사람들이 사람들이 사업을 시작할 때 그러듯, 번영의 큰 가능성을 위해 작은 고난의 위험을 감수하며 도박을 할 의향이 있을 수도 있다고 주장한다.

The disagreement shows that even an impartial procedure must rely on assumptions about how people respond to risk.
이 의견 차이는 공평한 절차조차 사람들이 위험에 어떻게 반응하는지에 관한 가정에 의존해야 함을 보여 준다.

해석 · The Limits of the Trolley

A runaway trolley is heading toward five workers on the track.
폭주하는 전차가 선로 위의 다섯 명의 작업자를 향해 가고 있다.

You can pull a lever to divert it onto a side track, where it will kill one person instead.
당신은 레버를 당겨 전차를 옆 선로로 돌릴 수 있는데, 그러면 대신 한 사람이 죽게 된다.

Most people say they would pull the lever.
대부분의 사람은 레버를 당기겠다고 말한다.

But when the only way to stop the trolley is to push a large man off a bridge into its path, most people refuse, even though the arithmetic is identical.
그러나 전차를 멈출 유일한 방법이 덩치 큰 남자를 다리에서 전차의 길로 밀어 떨어뜨리는 것일 때는, 계산이 똑같은데도 대부분의 사람이 거부한다.

Philosophers have used such cases for decades to probe the difference between causing harm and allowing it, or between harming someone as a means and as a side effect.
철학자들은 수십 년 동안 이런 사례를 이용해 해를 끼치는 것과 해를 허용하는 것의 차이, 또는 누군가를 수단으로 해치는 것과 부수적 결과로 해치는 것의 차이를 탐구해 왔다.

Critics object that the scenarios are so artificial that our responses tell us little about real moral life.
비판자들은 그 시나리오가 너무 인위적이어서 우리의 반응이 실제 도덕적 삶에 관해 알려 주는 바가 거의 없다고 반박한다.

In reality we are rarely certain that pushing someone would stop a vehicle, and we almost never face choices with only two options and perfectly known consequences.
현실에서 우리는 누군가를 미는 것이 차량을 멈출 것이라고 거의 확신할 수 없으며, 선택지가 단 두 개이고 결과가 완벽히 알려진 선택에 직면하는 일은 거의 없다.

Defenders reply that the artificiality is the point.
옹호자들은 인위성이 바로 핵심이라고 응수한다.

Just as physicists study objects in a vacuum to isolate gravity, philosophers strip away complications in order to isolate which features of an act make a moral difference.
물리학자들이 중력을 분리해 내려고 진공 속의 물체를 연구하듯, 철학자들은 행위의 어떤 특징이 도덕적 차이를 만드는지 분리해 내기 위해 복잡한 요소들을 걷어 낸다.

해석 · The Prison That Watches

In the late eighteenth century the philosopher Jeremy Bentham designed a prison he called the Panopticon.
18세기 후반 철학자 제러미 벤담은 그가 판옵티콘이라고 부른 감옥을 설계했다.

Cells were arranged in a ring around a central tower from which a guard could observe any prisoner, while blinds prevented prisoners from seeing whether anyone was actually watching.
감방들은 중앙 탑 주위에 원형으로 배치되었는데, 간수는 그 탑에서 어느 수감자든 관찰할 수 있었고 차양 때문에 수감자들은 실제로 누가 보고 있는지 알 수 없었다.

Bentham's insight was that constant observation was unnecessary.
벤담의 통찰은 끊임없는 감시가 불필요하다는 것이었다.

Because prisoners could never be sure they were unobserved, they would behave as if they were always being watched, effectively guarding themselves.
수감자들은 자신이 감시받지 않는다고 결코 확신할 수 없기 때문에 항상 감시받는 것처럼 행동할 것이고, 사실상 스스로를 감시하게 될 것이다.

The French philosopher Michel Foucault later treated the Panopticon as a symbol of modern power, which operates less through visible force than through the internalized sense of being observed.
프랑스 철학자 미셸 푸코는 이후 판옵티콘을 근대 권력의 상징으로 다루었는데, 근대 권력은 눈에 보이는 힘보다 감시받고 있다는 내면화된 감각을 통해 작동한다.

Schools, factories, and hospitals, he argued, shape behavior through examinations, records, and routines that make individuals visible and comparable.
그는 학교, 공장, 병원이 개인을 보이게 하고 비교할 수 있게 만드는 시험, 기록, 일과를 통해 행동을 형성한다고 주장했다.

Today the comparison is often extended to digital life, where data about our movements and purchases is collected continuously.
오늘날 그 비교는 흔히 디지털 생활로 확장되는데, 그곳에서는 우리의 이동과 구매에 관한 데이터가 끊임없이 수집된다.

There is an important difference, however.
그러나 중요한 차이가 있다.

Bentham's prisoners knew they might be watched and changed their behavior accordingly, whereas much digital collection happens invisibly, so its power may lie less in disciplining behavior than in predicting and influencing it without our awareness.
벤담의 수감자들은 자신이 감시받을 수 있다는 것을 알고 그에 따라 행동을 바꿨지만, 많은 디지털 수집은 보이지 않게 일어나므로, 그 힘은 행동을 규율하는 데보다 우리가 모르게 행동을 예측하고 영향을 주는 데 있을지 모른다.

해석 · Locked In by History

The arrangement of letters on most keyboards, beginning with QWERTY, was developed for mechanical typewriters in the 1870s.
대부분의 키보드에서 QWERTY로 시작하는 글자 배열은 1870년대 기계식 타자기를 위해 개발되었다.

Some economists have claimed that alternative layouts are faster and that we keep QWERTY only because everyone already learned it.
일부 경제학자들은 다른 배열이 더 빠르며 우리가 QWERTY를 유지하는 것은 단지 모두가 이미 그것을 배웠기 때문이라고 주장해 왔다.

The story became the standard illustration of path dependence: the idea that early, sometimes accidental choices can lock a society into an inferior technology.
그 이야기는 경로 의존성의 대표적인 예가 되었다. 초기의, 때로는 우연한 선택이 사회를 열등한 기술에 묶어 둘 수 있다는 생각이다.

Once many people use a standard, switching becomes costly, since typists would need to retrain and manufacturers would need to coordinate a change.
많은 사람이 하나의 표준을 사용하게 되면 전환에는 큰 비용이 드는데, 타자수들은 다시 훈련받아야 하고 제조업체들은 변화를 조율해야 하기 때문이다.

Later research complicated the tale.
이후의 연구는 이 이야기를 복잡하게 만들었다.

Careful reviews found that the evidence for the superiority of the main rival layout came largely from studies conducted by its own inventor, and independent tests showed only small differences.
면밀한 검토 결과, 주요 경쟁 배열의 우월성에 대한 증거는 주로 그 발명자 자신이 수행한 연구에서 나왔고, 독립적인 실험에서는 작은 차이만 나타났다.

If the alternative is barely better, sticking with the familiar standard may be perfectly rational.
대안이 간신히 더 나을 뿐이라면, 익숙한 표준을 고수하는 것이 완전히 합리적일 수 있다.

Path dependence remains a real phenomenon in areas such as railway gauges and electrical plugs.
경로 의존성은 철도 궤간이나 전기 플러그 같은 분야에서 여전히 실재하는 현상이다.

But the QWERTY debate shows that claims of being locked into an inferior choice require evidence that the alternative is substantially better, not merely different or newer.
그러나 QWERTY 논쟁은 열등한 선택에 묶여 있다는 주장에는 대안이 단지 다르거나 더 새로운 것이 아니라 상당히 더 낫다는 증거가 필요함을 보여 준다.

해석 · The Opportunity Cost of Time

Every choice involves giving something up.
모든 선택은 무언가를 포기하는 것을 수반한다.

Economists call the value of the best alternative forgone the opportunity cost of a decision, and they insist that it is as real as any price paid in money.
경제학자들은 포기한 최선의 대안의 가치를 결정의 기회비용이라 부르며, 그것이 돈으로 치른 어떤 가격만큼이나 실재한다고 강조한다.

A student who spends an evening at a free concert pays nothing at the door, but if she would otherwise have earned fifty dollars tutoring, the concert has cost her fifty dollars.
저녁을 무료 콘서트에서 보내는 학생은 입구에서 아무것도 내지 않지만, 그렇지 않았다면 과외로 50달러를 벌었을 것이라면 그 콘서트는 그녀에게 50달러의 비용이 든 것이다.

People are notoriously inconsistent about such costs.
사람들은 그런 비용에 대해 악명 높을 정도로 일관성이 없다.

Many will drive across town to save ten dollars on a toaster but would not make the same trip to save ten dollars on a car, although the time and fuel cost the same in both cases.
많은 사람이 토스터에서 10달러를 아끼려고 시내를 가로질러 운전하지만, 자동차에서 10달러를 아끼려고는 같은 거리를 가지 않을 텐데, 두 경우 모두 시간과 연료 비용은 같다.

They judge savings as a percentage of the price rather than as an absolute amount weighed against what the trip costs them.
그들은 절약액을 이동에 드는 비용과 비교한 절대 금액이 아니라 가격의 비율로 판단한다.

Opportunity costs are also easy to overlook because they are invisible: no receipt records the book you did not read or the friend you did not call.

기회비용은 보이지 않기 때문에 간과하기도 쉽다. 어떤 영수증도 당신이 읽지 않은 책이나 전화하지 않은 친구를 기록하지 않는다.

Thinking in terms of opportunity cost does not mean treating every hour as money.
기회비용의 관점에서 생각한다는 것은 모든 시간을 돈으로 취급한다는 뜻이 아니다.

It means asking, before committing time or resources, what else they could have been used for.
그것은 시간이나 자원을 쏟기 전에 그것이 다른 무엇에 쓰일 수 있었는지 묻는다는 뜻이다.

해석 · The Drifting Continents

In 1912 the German meteorologist Alfred Wegener proposed that the continents had once been joined and had slowly drifted apart.
1912년 독일의 기상학자 알프레트 베게너는 대륙들이 한때 붙어 있었고 천천히 떨어져 이동했다고 제안했다.

His evidence was striking: the coastlines of Africa and South America fit together like puzzle pieces, and identical fossils and rock formations appeared on continents now separated by oceans.
그의 증거는 인상적이었다. 아프리카와 남아메리카의 해안선은 퍼즐 조각처럼 맞아떨어졌고, 지금은 바다로 갈라진 대륙들에서 동일한 화석과 암석층이 나타났다.

Yet most geologists rejected the idea for decades.
그러나 대부분의 지질학자는 수십 년 동안 그 생각을 거부했다.

Their objection was not to the evidence of past connection but to the absence of a mechanism.
그들의 반대는 과거 연결의 증거가 아니라 메커니즘의 부재를 향한 것이었다.

Wegener could not explain what force could push enormous continents through the solid ocean floor, and the forces he suggested were shown to be far too weak.
베게너는 어떤 힘이 거대한 대륙을 단단한 해저를 뚫고 밀 수 있는지 설명하지 못했고, 그가 제시한 힘들은 너무 약하다는 것이 밝혀졌다.

The theory was revived only in the 1960s, when maps of the ocean floor revealed long ridges where new crust forms and spreads outward.
이 이론은 1960년대에 와서야 되살아났는데, 그때 해저 지도가 새로운 지각이 형성되어 바깥으로 퍼져 나가는 긴 해령을 드러냈다.

Continents, it turned out, do not plow through the ocean floor; they ride on moving plates that include it.
알고 보니 대륙은 해저를 갈아엎으며 나아가는 것이 아니라 해저를 포함하는 움직이는 판 위에 올라타 있었다.

Wegener is now often presented as a genius ignored by narrow-minded colleagues.
베게너는 오늘날 흔히 편협한 동료들에게 무시당한 천재로 소개된다.

The skepticism of his critics, however, was not unreasonable: a theory that describes a pattern without explaining how it arises leaves its most important question unanswered.
그러나 그의 비판자들의 회의는 불합리하지 않았다. 어떤 패턴이 어떻게 생기는지 설명하지 않고 그것을 기술하기만 하는 이론은 가장 중요한 질문을 답하지 않은 채 남겨 둔다.

해석 · Wash Your Hands

In the 1840s the Hungarian physician Ignaz Semmelweis noticed that women giving birth in one ward of a Vienna hospital died of fever far more often than those in another.
1840년대 헝가리 의사 이그나즈 제멜바이스는 빈의 한 병원의 한 병동에서 출산하는 여성들이 다른 병동의 여성들보다 훨씬 자주 열병으로 죽는다는 것을 알아챘다.

The deadly ward was staffed by doctors who often came directly from performing autopsies; the safer ward was staffed by midwives who did not.
치명적인 병동에는 흔히 부검을 하다가 곧장 오는 의사들이 근무했고, 더 안전한 병동에는 그렇지 않은 조산사들이 근무했다.

Semmelweis concluded that some invisible matter from corpses was being carried on the doctors' hands, and he required washing with a chlorine solution.
제멜바이스는 시체에서 나온 어떤 보이지 않는 물질이 의사들의 손을 통해 옮겨지고 있다고 결론짓고 염소 용액으로 손 씻기를 의무화했다.

Death rates fell dramatically.
사망률은 극적으로 떨어졌다.

Nevertheless, many colleagues rejected his conclusion, and he died years later in an asylum, his ideas still largely ignored.
그럼에도 많은 동료가 그의 결론을 거부했고, 그는 몇 년 뒤 정신 병원에서 죽었으며 그의 생각은 여전히 대체로 무시되었다.

Part of the resistance came from pride: doctors did not like being told they were killing their patients.
저항의 일부는 자존심에서 왔다. 의사들은 자신들이 환자를 죽이고 있다는 말을 듣기 싫어했다.

But Semmelweis also contributed to his own failure, publishing his results late, presenting them poorly, and attacking critics in angry letters.
그러나 제멜바이스 자신도 결과를 늦게 발표하고, 형편없이 제시하며, 분노에 찬 편지로 비판자들을 공격함으로써 자신의 실패에 일조했다.

Moreover, without a theory of germs, which would arrive only decades later, his explanation seemed vague.
게다가 수십 년 뒤에야 등장할 세균 이론이 없었기 때문에 그의 설명은 모호해 보였다.

His story is often told as a tale of truth defeated by prejudice, but it also shows that being right is not enough: evidence must be communicated in a way that others can evaluate and accept.
그의 이야기는 흔히 편견에 패배한 진실의 이야기로 전해지지만, 그것은 또한 옳은 것만으로는 충분하지 않다는 것을 보여 준다. 증거는 다른 사람들이 평가하고 받아들일 수 있는 방식으로 전달되어야 한다.

해석 · Do Classmates Matter?

Parents often go to great lengths to place their children in schools with high-achieving students, assuming that strong peers will lift their child's performance.
부모들은 우수한 동료가 자녀의 성적을 끌어올릴 것이라 가정하며 자녀를 성취도가 높은 학생들이 있는 학교에 보내려고 무척 애쓴다.

Measuring such peer effects, however, is surprisingly difficult.
그러나 그러한 또래 효과를 측정하는 것은 놀랍도록 어렵다.

Students are not assigned to schools at random; families who choose selective schools often differ in income, motivation, and support at home.
학생들은 학교에 무작위로 배정되지 않는다. 선별적인 학교를 고르는 가정은 흔히 소득, 동기, 가정의 지원에서 다르다.

If their children do well, it is hard to know whether the classmates or the families deserve the credit.
그 자녀들이 잘한다면, 공을 동급생에게 돌려야 할지 가정에 돌려야 할지 알기 어렵다.

Researchers have tried to solve the problem by studying elite schools that admit students based on a test score cutoff.
연구자들은 시험 점수 기준선에 따라 학생을 받는 명문 학교를 연구함으로써 그 문제를 해결하려 해 왔다.

Students who score just above the cutoff are almost identical to those who score just below it, except that one group attends the elite school and the other does not.
기준선을 간신히 넘은 학생들은 간신히 넘지 못한 학생들과 거의 똑같은데, 한 집단은 명문 학교에 다니고 다른 집단은 그렇지 않다는 점만 다르다.

Comparing the two groups, several studies found little or no improvement in later test scores for those admitted.
두 집단을 비교한 결과, 여러 연구는 입학한 학생들의 이후 시험 점수에서 개선이 거의 또는 전혀 없음을 발견했다.

The impressive results of elite schools seemed to reflect mainly the students they selected rather than what happened inside.
명문 학교의 인상적인 결과는 학교 안에서 일어난 일보다 주로 그들이 선발한 학생들을 반영하는 것으로 보였다.

Such findings do not prove that peers never matter, but they suggest that the advantage parents pay for may be smaller than it appears.
이러한 발견이 또래가 결코 중요하지 않다는 것을 증명하지는 않지만, 부모들이 돈을 들이는 이점이 겉보기보다 작을 수 있음을 시사한다.

해석 · Immunity in Numbers

When enough people in a population are immune to a contagious disease, the disease cannot spread easily, and even those who are not immune are protected.

한 집단에서 충분히 많은 사람이 전염병에 면역이 있으면 그 병은 쉽게 퍼질 수 없고, 면역이 없는 사람들조차 보호받는다.

This herd immunity shields newborns too young to be vaccinated and people whose medical conditions prevent vaccination.
이 집단 면역은 백신을 맞기에 너무 어린 신생아와 건강 상태 때문에 백신을 맞을 수 없는 사람들을 보호한다.

The threshold required depends on how contagious a disease is.
필요한 문턱은 질병의 전염성이 얼마나 강한지에 달려 있다.

For measles, which spreads extremely easily, roughly ninety-five percent of a population must be immune.
극도로 쉽게 퍼지는 홍역의 경우, 인구의 약 95퍼센트가 면역이 있어야 한다.

Herd immunity creates a classic dilemma.
집단 면역은 전형적인 딜레마를 만든다.

If nearly everyone else is vaccinated, an individual who refuses still enjoys protection while avoiding even the small risks of the vaccine.
거의 모든 다른 사람이 백신을 맞았다면, 거부하는 개인은 백신의 작은 위험조차 피하면서도 여전히 보호를 누린다.

Each refusal seems harmless, but if many people reason the same way, coverage drops below the threshold and outbreaks return.
각각의 거부는 무해해 보이지만, 많은 사람이 같은 식으로 추론하면 접종률이 문턱 아래로 떨어지고 발병이 돌아온다.

Ironically, the success of vaccination programs can encourage this behavior, because once a disease becomes rare, people forget how dangerous it was.
역설적이게도 백신 프로그램의 성공이 이런 행동을 부추길 수 있는데, 일단 질병이 드물어지면 사람들이 그것이 얼마나 위험했는지 잊기 때문이다.

Public health, in this sense, is not merely a personal choice but a shared good that each person's decision either supports or erodes.
이런 의미에서 공중 보건은 단순히 개인의 선택이 아니라 각자의 결정이 지지하거나 갉아먹는 공유재다.

해석 · The Confident Beginner

A widely cited study from 1999 reported that people who performed worst on tests of logic and grammar greatly overestimated their own abilities, while top performers slightly underestimated theirs.
1999년의 널리 인용되는 한 연구는 논리와 문법 시험에서 가장 못한 사람들이 자기 능력을 크게 과대평가했고, 최상위 수행자들은 자기 능력을 약간 과소평가했다고 보고했다.

The authors suggested that incompetence carries a double burden: the skills needed to perform well are the same skills needed to recognize poor performance.
저자들은 무능함에 이중의 짐이 따른다고 시사했다. 잘 수행하는 데 필요한 기술이 서투른 수행을 알아보는 데 필요한 기술과 같다는 것이다.

The finding, now known as the Dunning-Kruger effect, became a popular way of mocking overconfident people.
오늘날 더닝-크루거 효과로 알려진 이 발견은 과신하는 사람들을 조롱하는 인기 있는 방법이 되었다.

Statisticians have since raised a complication.
이후 통계학자들은 복잡한 문제를 제기했다.

If people's self-estimates are only loosely related to their real scores, then those who score lowest will tend, simply by chance, to rate themselves above their score, and those who score highest will tend to rate themselves below it.
사람들의 자기 추정치가 실제 점수와 느슨하게만 관련되어 있다면, 가장 낮은 점수를 받은 사람들은 단지 우연에 의해 자신을 점수보다 높게 평가하는 경향이 있을 것이고, 가장 높은 점수를 받은 사람들은 점수보다 낮게 평가하는 경향이 있을 것이다.

Combined with a general tendency for everyone to think they are above average, this statistical pattern can reproduce much of the original graph without any special blindness among the unskilled.
모든 사람이 자신을 평균 이상이라고 생각하는 일반적 경향과 결합되면, 이 통계적 패턴은 미숙한 사람들 사이의 특별한 맹목 없이도 원래 그래프의 상당 부분을 재현할 수 있다.

Researchers continue to debate how much of the effect is psychological and how much is statistical.
연구자들은 그 효과 중 얼마만큼이 심리적이고 얼마만큼이 통계적인지 계속 논쟁하고 있다.

The case is a reminder that a striking pattern in data can arise from the way it is measured rather than from the phenomenon it appears to show.
이 사례는 데이터 속의 인상적인 패턴이 그것이 보여 주는 것처럼 보이는 현상이 아니라 측정 방식에서 생길 수 있음을 상기시킨다.

해석 · Same Facts, Different Choices

Imagine a disease expected to kill six hundred people.
600명을 죽일 것으로 예상되는 질병을 상상해 보라.

Program A will save two hundred people for certain; Program B has a one-third chance of saving all six hundred and a two-thirds chance of saving no one.
프로그램 A는 확실히 200명을 구할 것이고, 프로그램 B는 3분의 1 확률로 600명 모두를 구하고 3분의 2 확률로 아무도 구하지 못한다.

When the choice is described this way, most people prefer the certain option.
선택이 이렇게 묘사되면 대부분의 사람은 확실한 선택지를 선호한다.

Now describe the same programs differently: under A, four hundred people will die for certain; under B, there is a one-third chance that no one will die and a two-thirds chance that all six hundred will die.
이제 같은 프로그램을 다르게 묘사해 보자. A에서는 400명이 확실히 죽고, B에서는 3분의 1 확률로 아무도 죽지 않고 3분의 2 확률로 600명 모두가 죽는다.

With this wording, most people choose the gamble.
이 표현에서는 대부분의 사람이 도박을 선택한다.

The outcomes are mathematically identical; only the frame has shifted from lives saved to lives lost.
결과는 수학적으로 동일하며, 틀만 구한 생명에서 잃은 생명으로 바뀌었을 뿐이다.

Psychologists Amos Tversky and Daniel Kahneman used this experiment to show that people tend to avoid risk when considering gains but seek risk when facing losses.
심리학자 아모스 트버스키와 대니얼 카너먼은 이 실험을 이용해 사람들이 이득을 고려할 때는 위험을 피하지만 손실에 직면할 때는 위험을 추구하는 경향이 있음을 보여 주었다.

The finding troubled economists, whose models assumed that preferences depend on outcomes, not on descriptions.
이 발견은 선호가 묘사가 아니라 결과에 달려 있다고 가정한 모델을 가진 경제학자들을 곤란하게 했다.

It also has practical consequences, since doctors, marketers, and politicians can influence decisions simply by choosing which frame to present.
그것은 또한 실제적인 결과를 낳는데, 의사, 마케터, 정치인이 어떤 틀을 제시할지 선택하는 것만으로 결정에 영향을 줄 수 있기 때문이다.

해석 · The Number That Sticks

In one experiment, participants spun a wheel that landed on either ten or sixty-five, and were then asked to estimate the percentage of African nations in the United Nations.
한 실험에서 참가자들은 10 또는 65에 멈추는 바퀴를 돌린 뒤, 국제 연합에 속한 아프리카 국가의 비율을 추정하라는 질문을 받았다.

Those who saw sixty-five gave much higher estimates than those who saw ten, although everyone knew the wheel was random.
65를 본 사람들은 10을 본 사람들보다 훨씬 높은 추정치를 내놓았는데, 모두가 바퀴가 무작위라는 것을 알고 있었다.

This tendency to rely on an initial number, even an irrelevant one, is called anchoring.
처음 주어진 숫자에, 심지어 무관한 숫자에도 의존하는 이 경향을 앵커링이라고 한다.

People seem to start from the anchor and adjust away from it, but they stop adjusting too soon.
사람들은 앵커에서 출발해 그로부터 조정해 나가지만 너무 일찍 조정을 멈추는 것 같다.

Anchoring appears in many real settings.
앵커링은 많은 실제 상황에서 나타난다.

A high asking price in a negotiation pulls the final agreement upward, and judges given a prosecutor's demand for a long sentence tend to impose longer sentences.

협상에서 높은 호가는 최종 합의를 위로 끌어올리고, 검사의 긴 형량 요구를 받은 판사들은 더 긴 형량을 선고하는 경향이 있다.

Even experts with relevant knowledge are affected, though less than novices.
관련 지식을 가진 전문가들조차 초보자보다는 덜하지만 영향을 받는다.

One partial remedy is to generate a counter-anchor deliberately, asking what reasons might justify a very different number before settling on an estimate.
한 가지 부분적 해결책은 추정치를 정하기 전에 매우 다른 숫자를 정당화할 수 있는 이유가 무엇인지 물으며 의도적으로 반대 앵커를 만들어 내는 것이다.

Simply knowing about the bias, by contrast, does surprisingly little to reduce it.
반면, 단순히 그 편향에 대해 아는 것은 그것을 줄이는 데 놀랄 만큼 거의 도움이 되지 않는다.

해석 · Weighing the Odds

People do not treat probabilities in a straight line.
사람들은 확률을 일직선으로 다루지 않는다.

A change from zero to one percent feels enormous, because an impossible event has become possible; a change from fifty to fifty-one percent barely registers.
0퍼센트에서 1퍼센트로의 변화는 엄청나게 느껴지는데, 불가능한 사건이 가능해졌기 때문이다. 50퍼센트에서 51퍼센트로의 변화는 거의 느껴지지 않는다.

Similarly, a change from ninety-nine to one hundred percent feels far more valuable than the same one-point change in the middle, since it converts risk into certainty.
마찬가지로 99퍼센트에서 100퍼센트로의 변화는 중간에서의 같은 1포인트 변화보다 훨씬 가치 있게 느껴지는데, 위험을 확실성으로 바꿔 주기 때문이다.

Prospect theory, developed by Kahneman and Tversky, captures this pattern by assigning decision weights that differ from actual probabilities.
카너먼과 트버스키가 개발한 전망 이론은 실제 확률과 다른 결정 가중치를 부여함으로써 이 패턴을 포착한다.

Small probabilities are overweighted, and large probabilities are underweighted relative to certainty.
작은 확률은 과대평가되고, 큰 확률은 확실성에 비해 과소평가된다.

This explains why the same person might buy both a lottery ticket and an insurance policy.
이는 같은 사람이 왜 복권과 보험을 둘 다 살 수 있는지 설명한다.

The tiny chance of winning a fortune feels larger than it is, and so does the tiny chance of a disaster that insurance protects against.
큰돈을 딸 아주 작은 가능성은 실제보다 크게 느껴지고, 보험이 막아 주는 재난의 아주 작은 가능성도 마찬가지다.

Companies exploit these tendencies by advertising rare jackpots prominently and by selling expensive warranties against unlikely breakdowns.
기업들은 드문 대박을 눈에 띄게 광고하고, 일어날 것 같지 않은 고장에 대비한 비싼 보증을 팔아 이러한 경향을 이용한다.

Recognizing the pattern will not make us perfectly rational, but it can help us notice when a small probability is being made to feel larger than it is.
이 패턴을 인식한다고 우리가 완벽히 합리적이 되지는 않겠지만, 작은 확률이 실제보다 크게 느껴지도록 만들어지고 있을 때 알아차리는 데는 도움이 될 수 있다.

해석 · Why Voters Don't Study

Many citizens know surprisingly little about politics, unable to name their representatives or explain major policies.
많은 시민이 정치에 대해 놀랄 만큼 적게 알아서, 자기 지역 대표의 이름을 말하거나 주요 정책을 설명하지 못한다.

Some economists argue that this ignorance is not laziness but a rational response to incentives.
일부 경제학자들은 이 무지가 게으름이 아니라 유인에 대한 합리적인 반응이라고 주장한다.

Gathering political information takes time and effort, while the chance that a single vote will decide a national election is extraordinarily small.
정치 정보를 모으는 데는 시간과 노력이 들지만, 한 표가 전국 선거를 결정할 확률은 극히 작다.

From a purely individual point of view, the cost of becoming informed outweighs the expected benefit.
순전히 개인적인 관점에서는 정보를 갖추는 비용이 기대 이익보다 크다.

The same people may research carefully before buying a car, because that decision depends on them alone.
같은 사람들이 차를 사기 전에는 신중하게 조사할 수 있는데, 그 결정은 오직 그들에게만 달려 있기 때문이다.

This rational ignorance poses a challenge for democracy, since voters who know little may be swayed by slogans or by small, well-organized groups that do pay attention.
이 합리적 무지는 민주주의에 도전이 되는데, 아는 것이 적은 유권자들은 구호나, 실제로 관심을 기울이는 작고 잘 조직된 집단에 흔들릴 수 있기 때문이다.

Others respond that voters need not know details to make reasonable choices.
다른 이들은 유권자가 합리적인 선택을 하기 위해 세부 사항까지 알 필요는 없다고 응수한다.

They can rely on shortcuts such as party labels, endorsements from trusted organizations, and their sense of whether life has improved.
그들은 정당 명칭, 신뢰하는 단체의 지지 표명, 삶이 나아졌는지에 대한 감각 같은 지름길에 의존할 수 있다.

Whether such shortcuts are adequate remains one of the central questions about how well democracies can function.
그러한 지름길이 충분한지는 민주주의가 얼마나 잘 작동할 수 있는지에 관한 핵심 질문 중 하나로 남아 있다.

해석 · The Pull Toward the Middle

Imagine voters arranged along a line from the most left-leaning to the most right-leaning, each choosing the candidate closest to his or her own position.
유권자들이 가장 왼쪽 성향부터 가장 오른쪽 성향까지 한 줄로 늘어서 있고, 각자 자기 입장에 가장 가까운 후보를 고른다고 상상해 보라.

If there are two candidates, each can win more votes by moving toward the center, because voters on the extreme will still prefer the closer candidate.
후보가 둘이라면 각자는 중앙으로 이동함으로써 더 많은 표를 얻을 수 있는데, 극단의 유권자들은 여전히 더 가까운 후보를 선호할 것이기 때문이다.

The candidate who captures the median voter, the one exactly in the middle, wins the election.
정확히 중간에 있는 중위 투표자를 차지하는 후보가 선거에서 이긴다.

This median voter theorem predicts that two-party competition pushes both parties toward similar, moderate positions.
이 중위 투표자 정리는 양당 경쟁이 두 정당을 비슷하고 온건한 입장으로 밀어붙인다고 예측한다.

Yet in many democracies, parties have grown more polarized rather than less.
그러나 많은 민주주의 국가에서 정당들은 덜 양극화되기는커녕 더 양극화되었다.

Political scientists point to features the simple model ignores.
정치학자들은 단순한 모델이 무시하는 특징들을 지적한다.

Candidates must first win primary elections dominated by more extreme party members, and turnout matters: a candidate who excites a passionate base may gain more than one who wins over a few moderates.
후보들은 먼저 더 극단적인 당원들이 지배하는 예비 선거에서 이겨야 하고, 투표율도 중요하다. 열정적인 지지층을 흥분시키는 후보가 소수의 온건파를 끌어들이는 후보보다 더 많이 얻을 수 있다.

Moreover, real political views do not fall along a single line.
게다가 실제 정치적 견해는 하나의 선을 따라 놓여 있지 않다.

The theorem remains useful not because it describes reality exactly, but because the ways reality departs from it reveal which forces are actually at work.
이 정리가 여전히 유용한 것은 그것이 현실을 정확히 기술해서가 아니라, 현실이 그것에서 벗어나는 방식이 실제로 어떤 힘이 작용하고 있는지를 드러내기 때문이다.

해석 · Cursed by Riches

It seems obvious that a country blessed with oil or minerals should grow richer than one without them.
석유나 광물을 타고난 나라가 그렇지 않은 나라보다 더 부유해져야 한다는 것은 당연해 보인다.

Yet many resource-rich countries have grown more slowly, suffered more corruption, and experienced more conflict than their resource-poor neighbors.
그러나 많은 자원 부국은 자원이 부족한 이웃 나라들보다 더 느리게 성장하고, 더 많은 부패를 겪고, 더 많은 분쟁을 경험했다.

Economists call this pattern the resource curse.
경제학자들은 이 패턴을 자원의 저주라고 부른다.

Several mechanisms have been proposed.
여러 메커니즘이 제시되어 왔다.

Large resource exports can raise the value of a country's currency, making its other industries, such as manufacturing, less competitive abroad.
대규모 자원 수출은 그 나라 통화의 가치를 올려 제조업 같은 다른 산업의 해외 경쟁력을 떨어뜨릴 수 있다.

Commodity prices swing wildly, so governments that depend on them face cycles of boom and bust.
원자재 가격은 크게 요동치므로, 그것에 의존하는 정부는 호황과 불황의 순환을 겪는다.

Most importantly, a government that can fund itself from resource revenues does not need to tax its citizens, and therefore has less reason to listen to them.
가장 중요하게는, 자원 수입으로 스스로 재원을 마련할 수 있는 정부는 시민에게 세금을 걷을 필요가 없고, 따라서 그들의 목소리를 들을 이유가 적다.

The curse, however, is not destiny.
그러나 그 저주가 운명은 아니다.

Norway, which had strong institutions before discovering oil, saved its revenues in a fund managed for future generations, and Botswana used diamond income to build schools and roads.
석유를 발견하기 전에 강한 제도를 갖고 있던 노르웨이는 그 수입을 미래 세대를 위해 관리되는 기금에 저축했고, 보츠와나는 다이아몬드 수입으로 학교와 도로를 지었다.

The decisive factor appears to be the quality of institutions when the wealth arrives, not the wealth itself.
결정적 요인은 부 자체가 아니라 부가 도착했을 때의 제도의 질인 것으로 보인다.

해석 · Why Trade Benefits Even the Less Efficient

Suppose one country can produce both cloth and wine more efficiently than another.
한 나라가 다른 나라보다 옷감과 포도주를 모두 더 효율적으로 생산할 수 있다고 가정해 보자.

It might seem that the more efficient country has nothing to gain from trade.
더 효율적인 나라는 무역에서 얻을 것이 없는 것처럼 보일 수 있다.

The economist David Ricardo showed in 1817 that this is wrong.
경제학자 데이비드 리카도는 1817년에 이것이 틀렸음을 보여 주었다.

What matters is not absolute advantage but comparative advantage: the good each country can produce at the lowest opportunity cost, meaning the least sacrifice of the other good.
중요한 것은 절대 우위가 아니라 비교 우위, 즉 각 나라가 가장 낮은 기회비용으로, 다시 말해 다른 재화를 가장 적게 희생하면서 생산할 수 있는 재화다.

If the efficient country is vastly better at wine but only slightly better at cloth, it gains by specializing in wine and importing cloth.
효율적인 나라가 포도주에서는 훨씬 더 낫지만 옷감에서는 약간만 낫다면, 포도주에 특화하고 옷감을 수입함으로써 이득을 본다.

The less efficient country, by specializing in cloth, also ends up with more of both goods than it could produce alone.
덜 효율적인 나라도 옷감에 특화함으로써 혼자 생산할 수 있었던 것보다 두 재화를 모두 더 많이 갖게 된다.

The same logic applies to individuals.
같은 논리가 개인에게도 적용된다.

A lawyer who types faster than her assistant still benefits from hiring him, because every hour she spends typing is an hour not spent on far more valuable legal work.
비서보다 타자를 더 빨리 치는 변호사도 그를 고용함으로써 이득을 보는데, 그녀가 타자에 쓰는 모든 시간은 훨씬 더 가치 있는 법률 업무에 쓰지 못한 시간이기 때문이다.

Comparative advantage explains why trade can benefit all parties overall, though it does not guarantee that every worker within a country gains, which is why the politics of trade remain contentious.
비교 우위는 무역이 왜 전체적으로 모든 당사자에게 이익이 될 수 있는지 설명하지만, 한 나라 안의 모든 노동자가 이득을 보는 것을 보장하지는 않으며, 그래서 무역의 정치는 여전히 논쟁적이다.

해석 · Raising the Floor

Basic economic theory predicts that a minimum wage set above the market rate will reduce employment, since employers buy less of anything when its price rises.
기본적인 경제 이론은 시장 임금보다 높게 정해진 최저 임금이 고용을 줄일 것이라고 예측하는데, 고용주는 무엇이든 가격이 오르면 덜 사기 때문이다.

In 1994 two economists challenged this prediction by comparing fast-food restaurants in two neighboring American states, one of which had just raised its minimum wage.
1994년 두 경제학자는 막 최저 임금을 올린 주와 그 이웃 주의 패스트푸드 식당을 비교함으로써 이 예측에 도전했다.

They found no decline in employment in the state with the higher wage.
그들은 임금이 더 높은 주에서 고용 감소를 발견하지 못했다.

One explanation is that in many local labor markets, a few large employers have the power to pay workers less than they would earn in a fully competitive market.
한 가지 설명은 많은 지역 노동 시장에서 소수의 대형 고용주가 완전 경쟁 시장에서 노동자가 벌 수 있는 것보다 적게 지불할 힘을 가지고 있다는 것이다.

In such cases, a moderate minimum wage can raise pay without reducing jobs, and may even attract more workers.
그런 경우 적정한 최저 임금은 일자리를 줄이지 않고 임금을 올릴 수 있으며, 오히려 더 많은 노동자를 끌어들일 수도 있다.

The study set off decades of research, and the results remain debated.
그 연구는 수십 년의 연구를 촉발했고, 그 결과는 여전히 논쟁 중이다.

Most economists now agree that modest increases have small employment effects, while very large increases, especially in low-wage regions, are more likely to cost jobs.
오늘날 대부분의 경제학자는 완만한 인상은 고용에 작은 영향을 주지만, 매우 큰 인상, 특히 저임금 지역에서의 인상은 일자리를 없앨 가능성이 더 크다는 데 동의한다.

The debate illustrates how a simple model can be a useful starting point while still failing to describe markets in which its assumptions do not hold.
이 논쟁은 단순한 모델이 유용한 출발점이 될 수 있으면서도, 그 가정이 성립하지 않는 시장을 기술하는 데는 실패할 수 있음을 보여 준다.

해석 · Insured and Careless

Insurance protects people from losses, but it can also change how they behave.
보험은 사람들을 손실로부터 보호하지만, 그들이 행동하는 방식을 바꿀 수도 있다.

A driver whose car is fully insured may park in riskier places; a company whose losses will be covered by the government may take bigger gambles.
차가 완전히 보험에 들어 있는 운전자는 더 위험한 곳에 주차할 수 있고, 손실을 정부가 보전해 줄 회사는 더 큰 도박을 할 수 있다.

Economists call this moral hazard: when someone else bears the cost of a risk, people take less care to avoid it.
경제학자들은 이것을 도덕적 해이라고 부른다. 다른 누군가가 위험의 비용을 부담할 때 사람들은 그것을 피하려고 덜 주의한다.

The term does not imply that people are dishonest; they are simply responding to changed incentives.
이 용어는 사람들이 부정직하다는 뜻이 아니다. 그들은 단순히 바뀐 유인에 반응하고 있을 뿐이다.

Insurers manage the problem in several ways.
보험사들은 여러 방법으로 이 문제를 관리한다.

Deductibles require the insured to pay the first part of any loss, so they still have a stake in avoiding it.
공제액은 피보험자가 어떤 손실이든 첫 부분을 지불하게 해서, 그들이 여전히 손실을 피하는 데 이해관계를 갖게 한다.

Premiums may rise after claims, and policies may require precautions such as smoke detectors.
보험금 청구 후에는 보험료가 오를 수 있고, 보험 약관은 화재 경보기 같은 예방 조치를 요구할 수 있다.

The concept became widely discussed after the 2008 financial crisis, when governments rescued large banks to prevent economic collapse.
이 개념은 2008년 금융 위기 이후 널리 논의되었는데, 그때 정부들은 경제 붕괴를 막기 위해 대형 은행들을 구제했다.

Critics warned that if banks expect to be rescued whenever they fail, they will continue to take excessive risks, making the next crisis more likely.
비판자들은 은행들이 실패할 때마다 구제받을 것이라고 기대한다면 계속해서 과도한 위험을 감수할 것이고, 그것이 다음 위기를 더 가능성 있게 만들 것이라고 경고했다.

해석 · The Market for Lemons

In a famous 1970 paper, the economist George Akerlof asked why used cars sell at such a large discount compared with new ones, even when they are only a few months old.
1970년의 유명한 논문에서 경제학자 조지 애컬로프는 중고차가 겨우 몇 달밖에 안 되었어도 새 차에 비해 왜 그토록 크게 할인되어 팔리는지 물었다.

His answer lay in unequal information.
그의 답은 불평등한 정보에 있었다.

Sellers know whether their car is a good one or a "lemon," a car with hidden defects, but buyers cannot easily tell the difference.
판매자는 자기 차가 좋은 차인지 숨은 결함이 있는 '레몬'인지 알지만, 구매자는 그 차이를 쉽게 알 수 없다.

Buyers therefore offer only an average price that reflects the risk of getting a lemon.
따라서 구매자는 레몬을 살 위험을 반영한 평균 가격만 제시한다.

Owners of good cars find this price too low and withdraw from the market, which lowers the average quality of cars for sale.
좋은 차의 주인들은 이 가격이 너무 낮다고 생각해 시장에서 빠지고, 이는 판매되는 차의 평균 품질을 떨어뜨린다.

Buyers respond by offering even less, and in extreme cases the market for good used cars can collapse entirely.
구매자는 더 적게 제시하는 것으로 대응하고, 극단적인 경우 좋은 중고차 시장은 완전히 붕괴할 수 있다.

This process, called adverse selection, appears wherever one side of a transaction knows more than the other.
역선택이라 불리는 이 과정은 거래의 한쪽이 다른 쪽보다 더 많이 알 때마다 나타난다.

People who expect to need medical care are more eager to buy health insurance, which raises costs and drives out healthier customers.
의료가 필요할 것이라고 예상하는 사람들은 건강 보험을 사는 데 더 적극적이며, 이는 비용을 올리고 더 건강한 고객들을 몰아낸다.

Warranties, inspections, and reputation systems exist largely to overcome this problem by giving buyers information they would otherwise lack.
보증, 검사, 평판 시스템은 대체로 구매자가 그렇지 않으면 갖지 못할 정보를 제공함으로써 이 문제를 극복하기 위해 존재한다.

해석 · What Diplomas Signal

College graduates earn substantially more than people without degrees, and this is usually taken as evidence that education makes workers more productive.
대학 졸업자는 학위가 없는 사람보다 상당히 많이 벌며, 이것은 보통 교육이 노동자를 더 생산적으로 만든다는 증거로 받아들여진다.

The economist Michael Spence proposed a provocative alternative.
경제학자 마이클 스펜스는 도발적인 대안을 제시했다.

Suppose employers cannot directly observe which applicants are capable and diligent.
고용주가 어떤 지원자가 유능하고 성실한지 직접 관찰할 수 없다고 가정해 보자.

Completing a demanding degree is easier for people who already possess those qualities, so a diploma can serve as a signal of ability even if the courses themselves teach nothing useful for the job.
힘든 학위를 마치는 것은 이미 그런 자질을 가진 사람들에게 더 쉬우므로, 학위는 과목 자체가 그 일에 쓸모 있는 것을 전혀 가르치지 않더라도 능력의 신호 역할을 할 수 있다.

On this view, part of what students buy with tuition is not knowledge but a credential that separates them from others.
이 관점에서 학생들이 등록금으로 사는 것의 일부는 지식이 아니라 그들을 다른 사람들과 구별해 주는 자격증이다.

Evidence for signaling includes the "sheepskin effect": earnings jump sharply upon completing the final year of a degree, more than the extra year of learning alone would seem to justify.
신호 이론의 증거로는 '졸업장 효과'가 있다. 학위의 마지막 해를 마치면 소득이 급격히 뛰는데, 이는 추가 1년의 학습만으로 정당화될 것 같은 정도보다 크다.

Most economists believe both explanations contain some truth.
대부분의 경제학자는 두 설명 모두에 어느 정도 진실이 있다고 믿는다.

The balance between them matters for policy, however: if education mainly builds skills, expanding it raises a society's productivity, but if it mainly signals, expanding it may simply start a costly race for ever-higher credentials.
그러나 둘 사이의 비중은 정책에 중요하다. 교육이 주로 기술을 쌓는다면 교육을 확대하는 것은 사회의 생산성을 높이지만, 주로 신호라면 교육을 확대하는 것은 단지 점점 더 높은 자격증을 위한 값비싼 경주를 시작할 수도 있다.

해석 · Who Pays for the Lighthouse?

Economists define a public good as one that is non-excludable and non-rivalrous.
경제학자들은 공공재를 배제 불가능하고 비경합적인 재화로 정의한다.

Non-excludable means that people who do not pay cannot easily be prevented from using it; non-rivalrous means that one person's use does not reduce what is available to others.
배제 불가능하다는 것은 돈을 내지 않는 사람들이 그것을 쓰는 것을 쉽게 막을 수 없다는 뜻이고, 비경합적이라는 것은 한 사람의 사용이 다른 사람들이 쓸 수 있는 양을 줄이지 않는다는 뜻이다.

National defense is the classic example.
국방은 전형적인 예다.

Because people can benefit without paying, private markets tend to provide too little of such goods, and governments typically fund them through taxes.
사람들이 돈을 내지 않고도 혜택을 볼 수 있기 때문에 민간 시장은 그러한 재화를 너무 적게 공급하는 경향이 있으며, 정부는 대개 세금으로 그것을 재원 조달한다.

For generations, textbooks used the lighthouse as another standard example: a ship cannot be stopped from seeing the light, so no private firm would build one.
여러 세대 동안 교과서는 등대를 또 하나의 표준적 예로 사용했다. 배가 불빛을 보는 것을 막을 수 없으므로 어떤 민간 회사도 등대를 짓지 않으리라는 것이다.

In 1974 Ronald Coase examined the history of British lighthouses and found that many had in fact been built and run by private operators.
1974년 로널드 코스는 영국 등대의 역사를 조사하여 많은 등대가 실제로 민간 운영자들에 의해 건설되고 운영되었음을 발견했다.

They collected fees from ships at nearby ports, where vessels could not avoid paying.
그들은 선박이 지불을 피할 수 없는 인근 항구에서 배들로부터 요금을 거두었다.

The light itself was non-excludable, but the port was not, and linking the two made private provision possible.
불빛 자체는 배제 불가능했지만 항구는 그렇지 않았고, 둘을 연결하자 민간 공급이 가능해졌다.

Coase's point was not that governments are unnecessary, but that economists should study how institutions actually work before declaring that markets must fail.
코스의 요점은 정부가 불필요하다는 것이 아니라, 경제학자들이 시장이 실패할 수밖에 없다고 선언하기 전에 제도가 실제로 어떻게 작동하는지 연구해야 한다는 것이었다.

해석 · The Value of Being Connected

A telephone is useless if no one else has one, and becomes more valuable as more people join the network.
전화기는 다른 누구도 전화기가 없으면 쓸모가 없고, 더 많은 사람이 그 네트워크에 가입할수록 더 가치 있어진다.

Economists call this property a network effect.
경제학자들은 이 속성을 네트워크 효과라고 부른다.

Social media platforms, payment systems, and messaging apps all display it.
소셜 미디어 플랫폼, 결제 시스템, 메신저 앱 모두 그것을 보인다.

Network effects create a distinctive pattern of competition.
네트워크 효과는 독특한 경쟁 패턴을 만든다.

Early in a market, several rivals may compete, but once one gains a lead, its growing value attracts still more users, and the market can tip toward a single dominant firm.
시장 초기에는 여러 경쟁자가 겨룰 수 있지만, 하나가 앞서 나가면 그 커지는 가치가 더 많은 사용자를 끌어들이고, 시장은 하나의 지배적 기업 쪽으로 기울 수 있다.

A newcomer with a better product may still fail, because users would have to abandon the place where all their contacts already are.
더 나은 제품을 가진 신참도 여전히 실패할 수 있는데, 사용자들이 자신의 모든 연락처가 이미 있는 곳을 버려야 하기 때문이다.

This is one reason why technology markets often feature "winner-take-most" outcomes.
이것이 기술 시장에서 흔히 '승자가 대부분을 차지하는' 결과가 나타나는 이유 중 하나다.

The same effects that make networks valuable also make them hard to regulate.
네트워크를 가치 있게 만드는 바로 그 효과가 그것을 규제하기 어렵게도 만든다.

Breaking up a dominant platform might reduce its value to users, while leaving it intact allows it to set terms that users cannot easily refuse; some economists therefore propose requiring platforms to let users move their data and contacts freely to competitors.
지배적 플랫폼을 분할하면 사용자에게 주는 가치가 줄 수 있고, 그대로 두면 사용자가 쉽게 거부할 수 없는 조건을 정하게 된다. 그래서 일부 경제학자들은 플랫폼이 사용자가 자기 데이터와 연락처를 경쟁사로 자유롭게 옮길 수 있게 하도록 요구하자고 제안한다.

해석 · Destruction That Creates

The economist Joseph Schumpeter described capitalism as a process of "creative destruction."
경제학자 조지프 슘페터는 자본주의를 '창조적 파괴'의 과정이라고 묘사했다.

New technologies and business models do not simply add to the economy; they replace older ones, driving established firms out of business.
새로운 기술과 사업 모델은 단순히 경제에 더해지는 것이 아니라 오래된 것들을 대체하여 기존 기업들을 몰아낸다.

Automobiles destroyed the carriage industry, digital cameras devastated film manufacturers, and streaming services undermined video rental stores.
자동차는 마차 산업을 파괴했고, 디지털카메라는 필름 제조사들을 황폐하게 했으며, 스트리밍 서비스는 비디오 대여점을 무너뜨렸다.

Schumpeter argued that this turbulence, not stable competition among similar firms, is the main source of long-term economic growth.
슘페터는 비슷한 기업들 사이의 안정적 경쟁이 아니라 이 격동이 장기적 경제 성장의 주된 원천이라고 주장했다.

The destruction, however, is not abstract.
그러나 그 파괴는 추상적인 것이 아니다.

Workers whose skills become obsolete may lose not only jobs but also the value of years of experience, and entire towns built around a dying industry can decline.
기술이 쓸모없어진 노동자들은 일자리뿐 아니라 여러 해에 걸친 경험의 가치도 잃을 수 있고, 쇠퇴하는 산업을 중심으로 세워진 마을 전체가 쇠락할 수 있다.

The gains are spread widely across consumers, while the losses are concentrated on specific people and places.
이득은 소비자 전반에 널리 퍼지는 반면, 손실은 특정한 사람과 장소에 집중된다.

This asymmetry helps explain why innovation often faces political resistance even when it benefits society overall.
이 비대칭은 혁신이 사회 전체에 이익이 될 때조차 흔히 정치적 저항에 부딪히는 이유를 설명하는 데 도움이 된다.

Many economists argue that the best response is not to block change but to cushion its victims through retraining, income support, and help in relocating.
많은 경제학자는 최선의 대응이 변화를 막는 것이 아니라 재교육, 소득 지원, 이주 지원을 통해 그 피해자들을 보호하는 것이라고 주장한다.

해석 · Bad Money Drives Out Good

In the sixteenth century, English coins were supposed to contain a fixed amount of silver, but many had been clipped or debased, so they held less.
16세기에 영국 동전은 정해진 양의 은을 담고 있어야 했지만, 많은 동전이 깎이거나 품위가 떨어져 더 적게 담고 있었다.

By law, all coins of the same face value had to be accepted equally.
법에 따라 같은 액면가의 동전은 모두 똑같이 받아들여져야 했다.

People responded predictably: they spent the debased coins and kept the full-weight ones, which were worth more as metal.
사람들은 예측 가능하게 반응했다. 품위가 떨어진 동전은 쓰고, 금속으로서 더 가치 있는 온전한 동전은 간직했다.

Soon only the inferior coins circulated.
곧 열등한 동전만 유통되었다.

The principle, associated with the financier Thomas Gresham, is usually summarized as "bad money drives out good."
금융가 토머스 그레셤과 연관된 이 원리는 보통 '악화가 양화를 구축한다'로 요약된다.

It is important to notice the condition that made it work: the law forced people to accept both coins at the same value.
그것을 작동하게 만든 조건에 주목하는 것이 중요하다. 법이 사람들에게 두 동전을 같은 가치로 받아들이도록 강제했다.

Where people are free to value money as they choose, the opposite can happen.
사람들이 원하는 대로 돈의 가치를 매길 수 있는 곳에서는 정반대의 일이 일어날 수 있다.

In economies suffering from runaway inflation, sellers often refuse the local currency and demand stable foreign money, so good money drives out bad.
걷잡을 수 없는 인플레이션을 겪는 경제에서 판매자들은 흔히 자국 통화를 거부하고 안정적인 외국 돈을 요구하므로, 양화가 악화를 구축한다.

Gresham's law, in other words, is not a law of nature but a consequence of a particular legal arrangement.
다시 말해 그레셤의 법칙은 자연법칙이 아니라 특정한 법적 장치의 결과다.

해석 · Beyond the Gene

Epigenetics studies chemical marks that sit on DNA and influence whether genes are switched on or off, without changing the genetic code itself.
후성유전학은 유전 암호 자체를 바꾸지 않으면서 DNA 위에 붙어 유전자가 켜지거나 꺼지는지에 영향을 주는 화학적 표지를 연구한다.

These marks can respond to diet, stress, and toxins, which has led to excitement about how experience might be written into biology.
이 표지들은 식단, 스트레스, 독소에 반응할 수 있어서, 경험이 어떻게 생물학에 새겨질 수 있는지에 대한 흥분을 불러일으켰다.

Popular accounts often go further, claiming that the trauma of one generation can be passed down through epigenetic marks to children and grandchildren.

대중적 설명은 흔히 더 나아가, 한 세대의 트라우마가 후성유전적 표지를 통해 자녀와 손주에게 전해질 수 있다고 주장한다.

In plants and some laboratory animals, certain marks do persist across generations.
식물과 일부 실험동물에서는 특정 표지가 실제로 여러 세대에 걸쳐 유지된다.

In mammals, however, most epigenetic marks are erased twice during early development, once in the cells that will become eggs and sperm and again shortly after fertilization.
그러나 포유류에서는 대부분의 후성유전적 표지가 초기 발달 과정에서 두 번 지워지는데, 한 번은 난자와 정자가 될 세포에서, 다시 한 번은 수정 직후에 지워진다.

Human studies claiming inheritance face an additional problem: parents pass on not only biology but also environments.
유전을 주장하는 인간 연구는 추가 문제에 직면한다. 부모는 생물학적 특성뿐 아니라 환경도 물려준다.

A child raised by traumatized parents may show effects of that upbringing, which can easily be mistaken for biological inheritance.
트라우마를 겪은 부모에게 길러진 아이는 그 양육의 영향을 보일 수 있는데, 이는 생물학적 유전으로 쉽게 오인될 수 있다.

Epigenetics is a genuine and important field.
후성유전학은 진정하고 중요한 분야다.

The danger lies in treating early or animal-based findings as established facts about human inheritance.
위험은 초기 연구나 동물 기반의 발견을 인간 유전에 관한 확립된 사실로 취급하는 데 있다.

해석 · The Changing Brain and Its Limits

For much of the twentieth century, scientists believed the adult brain was essentially fixed, unable to form new connections or recover from damage.
20세기의 상당 기간 과학자들은 성인의 뇌가 본질적으로 고정되어 있어서 새로운 연결을 형성하거나 손상에서 회복하지 못한다고 믿었다.

Research has overturned that view.
연구는 그 견해를 뒤집었다.

London taxi drivers who memorize the city's complex streets develop an enlarged region involved in spatial memory, and stroke patients can regain abilities as other brain areas take over lost functions.
도시의 복잡한 거리를 외우는 런던 택시 기사들은 공간 기억에 관여하는 영역이 커지며, 뇌졸중 환자들은 다른 뇌 영역이 잃어버린 기능을 넘겨받으면서 능력을 되찾을 수 있다.

This capacity, called neuroplasticity, has become a favorite theme of self-help books and brain-training companies.
신경 가소성이라 불리는 이 능력은 자기계발서와 두뇌 훈련 회사들이 가장 좋아하는 주제가 되었다.

Some promise that a few minutes of games each day will make users smarter in every area of life.
일부는 매일 몇 분의 게임이 사용자를 삶의 모든 영역에서 더 똑똑하게 만들 것이라고 약속한다.

The evidence for such broad benefits is weak.
그러한 폭넓은 효과에 대한 증거는 약하다.

People who practice a game generally get better at that game and at very similar tasks, but improvements rarely transfer to unrelated abilities such as reasoning or memory in daily life.
게임을 연습하는 사람들은 일반적으로 그 게임과 매우 비슷한 과제에서 나아지지만, 향상이 추론이나 일상의 기억 같은 무관한 능력으로 전이되는 경우는 드물다.

Plasticity, in fact, is specific: the brain changes in response to what it actually does.
사실 가소성은 구체적이다. 뇌는 실제로 하는 일에 반응하여 변한다.

The taxi drivers' brains changed because they spent years navigating real streets, a lesson suggesting that the best way to improve an ability is to practice that ability itself.
택시 기사들의 뇌가 변한 것은 그들이 여러 해 동안 실제 거리를 길 찾으며 다녔기 때문이며, 이 교훈은 어떤 능력을 향상하는 최선의 방법이 그 능력 자체를 연습하는 것임을 시사한다.

해석 · The Body's Clock

Nearly every cell in the human body contains a molecular clock that runs on a cycle of roughly twenty-four hours.
인체의 거의 모든 세포에는 약 24시간 주기로 돌아가는 분자 시계가 들어 있다.

These circadian rhythms regulate sleep, body temperature, hormone release, and even the timing of digestion.
이 일주기 리듬은 수면, 체온, 호르몬 분비, 심지어 소화의 시기까지 조절한다.

A master clock in the brain keeps the others synchronized, using light entering the eyes as its main signal of the time of day.
뇌의 주 시계는 눈으로 들어오는 빛을 하루 중 시각을 알리는 주된 신호로 사용하여 다른 시계들을 동기화한다.

Modern life frequently disrupts this system.
현대 생활은 이 체계를 자주 교란한다.

Night-shift workers sleep during the day and eat at times when their digestive organs expect rest, so their internal clocks fall out of step with one another.
야간 근무자들은 낮에 자고 소화 기관이 휴식을 기대하는 시간에 먹으므로, 그들의 체내 시계들은 서로 박자가 맞지 않게 된다.

Long-term shift work has been associated with higher rates of obesity, diabetes, and certain cancers.
장기간의 교대 근무는 비만, 당뇨병, 특정 암의 발생률 증가와 관련되어 왔다.

Researchers caution that these associations may partly reflect other factors, such as the kinds of people who take night jobs or the stress of irregular schedules.
연구자들은 이러한 연관성이 야간 일을 맡는 사람들의 특성이나 불규칙한 일정의 스트레스 같은 다른 요인을 부분적으로 반영할 수 있다고 주의를 준다.

Still, laboratory studies in which volunteers' schedules are deliberately shifted show rapid changes in blood sugar control, supporting a direct effect.
그래도 자원자들의 일정을 의도적으로 바꾼 실험실 연구는 혈당 조절에서 빠른 변화를 보여 주어 직접적 효과를 뒷받침한다.

Since many jobs require night work, the practical question is how to reduce the harm, for example by keeping meal times regular and controlling exposure to light.
많은 일이 야간 근무를 필요로 하므로, 실질적인 질문은 예를 들어 식사 시간을 규칙적으로 유지하고 빛 노출을 조절하는 것처럼 어떻게 해를 줄이느냐이다.

해석 · Giants and Dwarfs on Islands

Islands produce strange animals.
섬은 기이한 동물을 만들어 낸다.

Elephants on some Mediterranean islands shrank to the size of large pigs, while rats and lizards on other islands grew far larger than their mainland relatives.
일부 지중해 섬의 코끼리들은 큰 돼지만 한 크기로 줄어든 반면, 다른 섬의 쥐와 도마뱀들은 본토 친척들보다 훨씬 커졌다.

Biologists call this pattern the island rule: large animals tend to become smaller and small animals tend to become larger after colonizing islands.
생물학자들은 이 패턴을 섬 규칙이라 부른다. 큰 동물은 섬에 정착한 뒤 작아지고 작은 동물은 커지는 경향이 있다.

Several pressures may drive these changes.
여러 압력이 이러한 변화를 이끌 수 있다.

Islands usually offer limited food, which favors smaller bodies for large species that need enormous amounts to survive.
섬은 보통 먹이가 제한되어 있어서, 생존에 엄청난 양이 필요한 큰 종에게는 더 작은 몸이 유리하다.

At the same time, islands often lack large predators, so small animals no longer need to hide in tiny spaces and can grow bigger to compete for resources.
동시에 섬에는 흔히 큰 포식자가 없어서, 작은 동물들은 더 이상 작은 공간에 숨을 필요가 없고 자원을 두고 경쟁하기 위해 더 커질 수 있다.

The rule is a tendency rather than a law, and many species do not follow it.
이 규칙은 법칙이라기보다 경향이며, 많은 종이 그것을 따르지 않는다.

Recent analyses suggest that its strength depends on island size, isolation, and the presence of competitors.
최근 분석은 그 강도가 섬의 크기, 고립 정도, 경쟁자의 존재에 달려 있음을 시사한다.

The island rule nevertheless offers a vivid demonstration that body size is not a fixed trait but an adaptation to circumstances.
그럼에도 섬 규칙은 몸 크기가 고정된 특성이 아니라 환경에 대한 적응이라는 것을 생생하게 보여 준다.

해석 · Helping One's Relatives

Natural selection seems to reward selfishness: an animal that sacrifices itself for others should leave fewer offspring and disappear from the population.
자연 선택은 이기심에 보상하는 것처럼 보인다. 다른 개체를 위해 자신을 희생하는 동물은 자손을 더 적게 남겨 개체군에서 사라져야 한다.

Yet worker bees die defending their hive, and ground squirrels give alarm calls that attract predators to themselves.
그러나 일벌은 벌집을 지키다 죽고, 땅다람쥐는 포식자를 자신에게 끌어들이는 경고음을 낸다.

In 1964 the biologist W. D. Hamilton offered an explanation.
1964년 생물학자 W. D. 해밀턴은 하나의 설명을 내놓았다.

Genes, not individuals, are what natural selection ultimately favors, and relatives share many of the same genes.
자연 선택이 궁극적으로 선호하는 것은 개체가 아니라 유전자이며, 친족은 같은 유전자를 많이 공유한다.

A gene that leads an animal to help its siblings can spread if the benefit to the relatives, weighted by how closely related they are, exceeds the cost to the helper.
동물이 형제자매를 돕게 만드는 유전자는 친족이 얻는 이익을 얼마나 가까운 친족인지로 가중한 값이 돕는 개체의 비용을 넘으면 퍼질 수 있다.

The biologist J. B. S. Haldane is said to have joked that he would lay down his life for two brothers or eight cousins.
생물학자 J. B. S. 홀데인은 형제 둘이나 사촌 여덟을 위해서라면 목숨을 내놓겠다고 농담했다고 한다.

Kin selection explains why altruism in nature is usually directed toward relatives, and why ground squirrels call more often when kin are nearby.
친족 선택은 왜 자연의 이타심이 보통 친족을 향하는지, 그리고 왜 땅다람쥐가 친족이 가까이 있을 때 더 자주 경고음을 내는지 설명한다.

It does not, however, explain all cooperation.
그러나 그것이 모든 협력을 설명하지는 않는다.

Unrelated animals also help one another when favors are likely to be returned, and human cooperation among strangers on a massive scale requires additional explanations involving reputation, norms, and institutions.
혈연이 없는 동물들도 호의가 되돌아올 가능성이 있을 때 서로 돕고, 낯선 사람들 사이의 대규모 인간 협력은 평판, 규범, 제도를 포함하는 추가 설명을 필요로 한다.

해석 · Running to Stay in Place

In Lewis Carroll's Through the Looking-Glass, the Red Queen tells Alice that in her country "it takes all the running you can do, to keep in the same place."
루이스 캐럴의 『거울 나라의 앨리스』에서 붉은 여왕은 앨리스에게 자기 나라에서는 "같은 자리에 있으려면 할 수 있는 한 힘껏 달려야 한다"고 말한다.

Evolutionary biologists borrowed the image to describe a puzzling feature of life.
진화생물학자들은 이 이미지를 빌려 생명의 이해하기 어려운 특징을 묘사했다.

Species are constantly evolving, yet many do not seem to become better adapted over time.
종들은 끊임없이 진화하지만, 많은 종이 시간이 지나도 더 잘 적응하게 되는 것 같지 않다.

The reason is that their environments include other species that are evolving too.
그 이유는 그들의 환경에 함께 진화하는 다른 종들이 포함되어 있기 때문이다.

When a predator becomes faster, its prey must become faster just to survive at the same rate, and when a host develops resistance to a parasite, the parasite evolves new ways to infect it.
포식자가 더 빨라지면 먹잇감은 같은 비율로 살아남기 위해서만도 더 빨라져야 하고, 숙주가 기생체에 대한 저항력을 기르면 기생체는 숙주를 감염시킬 새로운 방법을 진화시킨다.

Each improvement is canceled by a counter-improvement, so neither side gains a lasting advantage.
각각의 개선은 반대편의 개선에 의해 상쇄되므로 어느 쪽도 지속적인 우위를 얻지 못한다.

The Red Queen hypothesis has been used to explain one of biology's great puzzles: the existence of sex.
붉은 여왕 가설은 생물학의 큰 수수께끼 중 하나인 성의 존재를 설명하는 데 사용되어 왔다.

Asexual reproduction is more efficient, since every individual can produce offspring, but it creates copies that parasites, once adapted, can attack with ease.
무성 생식은 모든 개체가 자손을 낳을 수 있으므로 더 효율적이지만, 일단 적응한 기생체가 쉽게 공격할 수 있는 복제본을 만들어 낸다.

By shuffling genes in every generation, sexual reproduction keeps offspring a moving target.
매 세대 유전자를 뒤섞음으로써 유성 생식은 자손을 움직이는 표적으로 유지한다.

해석 · Different Paths, Same Solution

Dolphins and sharks have strikingly similar streamlined bodies, yet one is a mammal and the other a fish, and their last common ancestor looked like neither.
돌고래와 상어는 놀랍도록 비슷한 유선형 몸을 가졌지만, 하나는 포유류이고 다른 하나는 어류이며, 그들의 마지막 공통 조상은 둘 중 어느 것과도 닮지 않았다.

The resemblance arose because both faced the same physical problem: moving quickly through water.
그 유사성은 둘 다 같은 물리적 문제, 즉 물속에서 빠르게 움직이는 문제에 직면했기 때문에 생겼다.

Biologists call this convergent evolution, the independent appearance of similar traits in unrelated lineages.
생물학자들은 이것을 수렴 진화, 즉 관련 없는 계통에서 비슷한 특성이 독립적으로 나타나는 것이라고 부른다.

Eyes with lenses have evolved separately in vertebrates and octopuses, and flight has arisen independently in insects, birds, bats, and extinct reptiles.
수정체를 가진 눈은 척추동물과 문어에서 따로 진화했고, 비행은 곤충, 새, 박쥐, 멸종한 파충류에서 독립적으로 나타났다.

Convergence has an important implication for how we think about evolution.
수렴은 우리가 진화를 생각하는 방식에 중요한 함의를 지닌다.

Some scholars have argued that if the history of life were replayed, it would produce entirely different outcomes, because evolution depends on countless accidents.
일부 학자들은 생명의 역사가 다시 재생된다면 진화가 수많은 우연에 의존하기 때문에 완전히 다른 결과를 낳을 것이라고 주장해 왔다.

The frequency of convergence suggests a partial counterargument: physical and ecological constraints may channel evolution toward a limited set of workable designs.
수렴의 빈번함은 부분적인 반론을 시사한다. 물리적·생태적 제약이 진화를 제한된 수의 작동 가능한 설계 쪽으로 이끌 수 있다는 것이다.

The details would surely differ, but certain solutions, like streamlined swimmers and camera-like eyes, might appear again and again.
세부는 분명 다르겠지만, 유선형 수영자와 카메라 같은 눈 같은 특정한 해결책은 거듭해서 나타날지도 모른다.

해석 · The Otters and the Kelp

Along the Pacific coast of North America, sea otters were hunted almost to extinction for their fur by the early twentieth century.
북아메리카 태평양 연안을 따라 해달은 20세기 초까지 모피 때문에 거의 멸종 직전까지 사냥되었다.

As the otters disappeared, so did vast underwater forests of kelp.
해달이 사라지자 거대한 수중 다시마 숲도 사라졌다.

The connection was sea urchins, spiny creatures that graze on kelp and are a favorite food of otters.
그 연결 고리는 다시마를 뜯어 먹으며 해달이 즐겨 먹는 가시 많은 생물인 성게였다.

Without otters to eat them, urchin populations exploded and stripped the seafloor bare.
그것을 먹을 해달이 없어지자 성게 개체 수가 폭발적으로 늘어 해저를 헐벗게 만들었다.

Where otters were protected and returned, urchins declined and the kelp forests recovered, along with the fish and other species that shelter in them.
해달이 보호받아 돌아온 곳에서는 성게가 줄고 다시마 숲이 회복되었으며, 그 안에 숨어 사는 물고기와 다른 종들도 함께 회복되었다.

Ecologists describe sea otters as a keystone species, one whose influence on an ecosystem is far greater than its numbers would suggest.
생태학자들은 해달을 핵심종, 즉 생태계에 미치는 영향이 그 개체 수가 시사하는 것보다 훨씬 큰 종이라고 묘사한다.

The term comes from architecture: remove the keystone from an arch, and the whole structure collapses.
이 용어는 건축에서 왔다. 아치에서 쐐기돌을 빼면 전체 구조가 무너진다.

Identifying keystone species matters for conservation, because protecting them can benefit many other organisms at once.
핵심종을 찾아내는 것은 보전에 중요한데, 그것을 보호하면 많은 다른 생물들에게 한꺼번에 이익이 될 수 있기 때문이다.

It is also a warning: the loss of a single species that seems unremarkable can set off changes that ripple through an entire ecosystem.
그것은 또한 경고이기도 하다. 별로 눈에 띄지 않아 보이는 단 하나의 종을 잃는 것이 생태계 전체로 퍼져 나가는 변화를 촉발할 수 있다.

해석 · Did the Wolves Save Yellowstone?

In 1995, gray wolves were reintroduced to Yellowstone National Park after an absence of about seventy years.
1995년 회색늑대가 약 70년 만에 옐로스톤 국립공원에 다시 도입되었다.

A popular story soon spread: by hunting elk and scaring them away from riverbanks, wolves allowed willows and aspens to regrow, which stabilized riverbanks and even changed the course of rivers.
곧 대중적인 이야기가 퍼졌다. 늑대가 엘크를 사냥하고 강둑에서 쫓아냄으로써 버드나무와 사시나무가 다시 자랄 수 있게 했고, 그것이 강둑을 안정시키고 심지어 강의 흐름까지 바꿨다는 것이다.

The idea of such a trophic cascade, a chain of effects running down a food web, is well established in some ecosystems.
먹이 그물을 따라 내려가는 일련의 효과인 그러한 영양 단계 연쇄라는 개념은 일부 생태계에서는 잘 확립되어 있다.

In Yellowstone, however, many ecologists believe the story has been oversimplified.
그러나 옐로스톤에서는 많은 생태학자가 그 이야기가 지나치게 단순화되었다고 믿는다.

Elk numbers also fell because of human hunting outside the park, severe winters, and the return of bears and cougars.
엘크 수는 공원 밖에서의 인간 사냥, 혹독한 겨울, 곰과 퓨마의 귀환 때문에도 줄었다.

Studies measuring elk behavior found little evidence that fear of wolves kept them away from rivers.
엘크의 행동을 측정한 연구들은 늑대에 대한 두려움이 그들을 강에서 멀어지게 했다는 증거를 거의 찾지 못했다.

Moreover, in places where beavers had disappeared, streams had cut deeper channels, so even reduced browsing did not allow willows to recover fully.
게다가 비버가 사라진 곳에서는 개울이 더 깊은 물길을 파 놓아서, 뜯어 먹기가 줄어도 버드나무가 완전히 회복되지 못했다.

The wolves certainly matter, but they are one force among many.
늑대는 분명히 중요하지만 여러 힘 가운데 하나다.

The appeal of the simple story shows how much people prefer a single heroic cause to a tangle of interacting ones.
단순한 이야기의 매력은 사람들이 서로 얽힌 여러 원인보다 하나의 영웅적인 원인을 얼마나 선호하는지 보여 준다.

해석 · The Other Carbon Problem

About a quarter of the carbon dioxide released by burning fossil fuels is absorbed by the oceans.
화석 연료를 태워 배출되는 이산화탄소의 약 4분의 1은 바다가 흡수한다.

This has slowed global warming, but it comes at a cost.
이는 지구 온난화를 늦췄지만 대가가 따른다.

When carbon dioxide dissolves in seawater, it forms carbonic acid, gradually lowering the ocean's pH.
이산화탄소가 바닷물에 녹으면 탄산을 형성하여 바다의 pH를 점차 낮춘다.

Since the industrial revolution, the surface ocean has become about thirty percent more acidic.
산업 혁명 이후 표층 바다는 약 30퍼센트 더 산성화되었다.

The change matters especially for organisms that build shells and skeletons from calcium carbonate, such as corals, oysters, and some plankton.
이 변화는 특히 산호, 굴, 일부 플랑크톤처럼 탄산칼슘으로 껍데기와 골격을 만드는 생물들에게 중요하다.

More acidic water reduces the availability of carbonate ions they need, making it harder and more energetically costly to build and maintain their structures.
더 산성인 물은 그들에게 필요한 탄산 이온의 가용성을 줄여 구조물을 만들고 유지하는 것을 더 어렵고 에너지가 많이 들게 한다.

Because tiny shell-building plankton sit near the base of many marine food webs, effects on them could spread to fish and the people who depend on fishing.
껍데기를 만드는 작은 플랑크톤은 많은 해양 먹이 그물의 바닥 근처에 있으므로, 그것들에 대한 영향은 물고기와 어업에 의존하는 사람들에게로 퍼질 수 있다.

Unlike warming, ocean acidification cannot be addressed by proposals to reflect sunlight back into space, since those would not reduce the carbon dioxide itself.
온난화와 달리 해양 산성화는 햇빛을 우주로 다시 반사시키자는 제안으로는 해결할 수 없는데, 그것은 이산화탄소 자체를 줄이지 않기 때문이다.

This is one reason scientists stress that cutting emissions remains essential even if other methods of cooling the planet are developed.
이것이 과학자들이 행성을 식히는 다른 방법이 개발되더라도 배출량 감축이 여전히 필수적이라고 강조하는 이유 중 하나다.

해석 · Who Speaks in a Text?

For centuries, critics assumed that the meaning of a literary work was what its author intended.
수 세기 동안 비평가들은 문학 작품의 의미가 그 작가가 의도한 것이라고 가정했다.

To understand a poem, one studied the poet's life, letters, and times.
시를 이해하려면 시인의 생애, 편지, 시대를 연구했다.

In 1967 the French critic Roland Barthes declared the "death of the author," arguing that once a text is written, its meaning is no longer controlled by the person who wrote it.
1967년 프랑스 비평가 롤랑 바르트는 '저자의 죽음'을 선언하며, 텍스트가 일단 쓰이고 나면 그 의미는 더 이상 그것을 쓴 사람이 통제하지 않는다고 주장했다.

A text, he wrote, is woven from countless earlier texts and conventions, and its unity lies not in its origin but in its destination: the reader.
그는 텍스트가 수많은 이전 텍스트와 관습으로 짜여 있으며, 그 통일성은 기원이 아니라 목적지, 즉 독자에게 있다고 썼다.

The idea liberated readers to find meanings an author might never have imagined.
그 생각은 독자들이 작가가 상상조차 하지 못했을 의미를 찾도록 해방시켰다.

Critics, however, worried that it could make every interpretation equally valid.
그러나 비평가들은 그것이 모든 해석을 똑같이 타당하게 만들 수 있다고 우려했다.

If the author's intention has no authority, what prevents a reader from claiming that a war poem is really about gardening?
작가의 의도에 아무 권위가 없다면, 독자가 전쟁 시가 사실은 정원 가꾸기에 관한 것이라고 주장하는 것을 무엇이 막겠는가?

Defenders reply that rejecting the author's control does not mean rejecting the text's constraints.
옹호자들은 작가의 통제를 거부하는 것이 텍스트의 제약을 거부하는 것을 의미하지 않는다고 응수한다.

Words, grammar, and the patterns of the work itself still limit what can be persuasively argued, even if no single meaning is fixed in advance.
단어, 문법, 작품 자체의 패턴은 어떤 단일한 의미가 미리 고정되어 있지 않더라도 설득력 있게 주장할 수 있는 것을 여전히 제한한다.

해석 · The Narrator Who Cannot Be Trusted

Most stories invite readers to trust their narrators.
대부분의 이야기는 독자가 화자를 믿도록 이끈다.

Some, however, deliberately present narrators whose accounts are distorted by ignorance, self-interest, or self-deception.
그러나 어떤 이야기들은 무지, 사리사욕, 자기기만으로 설명이 왜곡된 화자를 의도적으로 내세운다.

In Kazuo Ishiguro's The Remains of the Day, an aging butler describes his years of loyal service with great dignity.
가즈오 이시구로의 『남아 있는 나날』에서 나이 든 집사는 자신의 충직한 봉사의 세월을 대단한 품위를 갖추어 묘사한다.

Gradually, readers realize that his employer supported fascist causes and that the butler has avoided facing what his loyalty meant, as well as the love he let pass.
점차 독자들은 그의 고용주가 파시스트 대의를 지지했고, 집사가 자신의 충성이 의미한 바와 떠나보낸 사랑을 직면하기를 피해 왔음을 깨닫는다.

The power of such a narrator lies in the gap between what he says and what the reader comes to understand.
그러한 화자의 힘은 그가 말하는 것과 독자가 이해하게 되는 것 사이의 간극에 있다.

The reader must notice small contradictions, evasions, and moments when other characters react in ways the narrator does not explain.
독자는 작은 모순, 회피, 그리고 다른 인물들이 화자가 설명하지 않는 방식으로 반응하는 순간들을 알아차려야 한다.

In this way, the unreliable narrator turns reading into an act of detection.
이렇게 해서 믿을 수 없는 화자는 읽기를 탐지 행위로 바꾼다.

The technique also carries a moral lesson.
이 기법은 도덕적 교훈도 담고 있다.

Because readers often sympathize with the narrator before seeing his blindness, they experience firsthand how easily a sincere person can misread his own life.
독자들은 흔히 화자의 맹목을 보기 전에 그에게 공감하기 때문에, 진실한 사람이 얼마나 쉽게 자기 삶을 잘못 읽을 수 있는지 직접 경험한다.

해석 · Why We Enjoy Tragedy

Why do people willingly watch plays in which good characters suffer and die?
사람들은 왜 선한 인물들이 고통받고 죽는 연극을 기꺼이 보는가?

Aristotle proposed that tragedy produces catharsis, usually translated as purification or purgation of pity and fear.
아리스토텔레스는 비극이 카타르시스를 낳는다고 제안했는데, 이는 보통 연민과 두려움의 정화 또는 배출로 번역된다.

On one reading, watching tragedy allows audiences to release these emotions safely, leaving them calmer afterward, much as a medicine purges the body.
한 해석에 따르면 비극을 보는 것은 관객이 이 감정들을 안전하게 방출하게 하여, 약이 몸을 정화하듯 이후에 그들을 더 차분하게 만든다.

Another reading emphasizes understanding rather than release.
다른 해석은 방출보다 이해를 강조한다.

Tragedy shows how a person of good character can be destroyed by a mistake or a flaw, and in grasping how this happens, the audience gains insight into the fragility of human life.
비극은 좋은 성품을 지닌 사람이 하나의 실수나 결함 때문에 어떻게 파멸할 수 있는지 보여 주며, 이것이 어떻게 일어나는지 파악함으로써 관객은 인간 삶의 연약함에 대한 통찰을 얻는다.

The pleasure of tragedy, on this view, is the pleasure of learning something true, even when it is painful.
이 관점에서 비극의 즐거움은 고통스럽더라도 무언가 참된 것을 배우는 즐거움이다.

Modern psychology offers partial support for both ideas.
현대 심리학은 두 생각 모두를 부분적으로 뒷받침한다.

Studies find that sad films can increase feelings of connection with others and prompt reflection on what matters in life, though they do not reliably reduce negative emotion.
연구들은 슬픈 영화가 타인과의 유대감을 높이고 삶에서 중요한 것에 대한 성찰을 촉진할 수 있지만, 부정적 감정을 확실하게 줄이지는 않는다는 것을 발견한다.

If so, the understanding interpretation may fit the evidence better than the idea of a simple emotional release.
그렇다면 이해의 해석이 단순한 감정 방출이라는 생각보다 증거에 더 잘 맞을지도 모른다.

해석 · Terror at a Safe Distance

Eighteenth-century writers distinguished between the beautiful and the sublime.
18세기 작가들은 아름다움과 숭고를 구분했다.

The beautiful is small, smooth, and harmonious, and it pleases us gently.
아름다움은 작고, 매끄럽고, 조화로우며, 우리를 부드럽게 기쁘게 한다.

The sublime is vast, overwhelming, and even threatening: a towering mountain, a violent storm, the endless night sky.
숭고는 광대하고, 압도적이며, 심지어 위협적이다. 우뚝 솟은 산, 격렬한 폭풍, 끝없는 밤하늘 같은 것이다.

Edmund Burke argued that the sublime arises from a kind of terror, but only when we are not in actual danger.
에드먼드 버크는 숭고가 일종의 공포에서 생기지만, 우리가 실제로 위험에 처해 있지 않을 때만 그렇다고 주장했다.

A storm observed from a secure shelter thrills us; the same storm experienced in a small boat simply frightens us.
안전한 피난처에서 보는 폭풍은 우리를 전율케 하지만, 작은 배에서 겪는 같은 폭풍은 그저 우리를 두렵게 할 뿐이다.

Immanuel Kant added a twist.
이마누엘 칸트는 반전을 더했다.

Faced with something too large for our senses to grasp, we discover that our reason can still conceive of infinity, and we feel a kind of pride in a mind that exceeds nature's scale.
감각으로 파악하기에는 너무 큰 무언가에 직면했을 때, 우리는 이성이 여전히 무한을 생각할 수 있음을 발견하고, 자연의 규모를 넘어서는 정신에 대해 일종의 자부심을 느낀다.

For Kant, then, the sublime is ultimately not about the mountain but about ourselves.
그렇다면 칸트에게 숭고는 궁극적으로 산에 관한 것이 아니라 우리 자신에 관한 것이다.

Both accounts agree that the experience combines discomfort and pleasure, a mixture that distinguishes it sharply from ordinary beauty.
두 설명 모두 그 경험이 불쾌함과 즐거움을 결합한다는 데 동의하며, 이 혼합은 그것을 일상적인 아름다움과 뚜렷이 구별한다.

해석 · Almost Human

In 1970 the Japanese roboticist Masahiro Mori proposed a curious relationship between how human a robot looks and how comfortable people feel with it.
1970년 일본의 로봇 공학자 모리 마사히로는 로봇이 얼마나 인간처럼 보이는지와 사람들이 그것을 얼마나 편안하게 느끼는지 사이의 기묘한 관계를 제안했다.

As robots become more humanlike, people find them more appealing, up to a point.
로봇이 더 인간과 비슷해질수록 사람들은 그것을 더 호감 있게 여기는데, 어느 지점까지만 그렇다.

When a robot is almost, but not quite, human, comfort drops sharply into unease or even revulsion before rising again for figures indistinguishable from real people.

로봇이 거의 인간이지만 완전히 그렇지는 않을 때, 편안함은 불안이나 심지어 혐오로 급격히 떨어졌다가, 실제 사람과 구별할 수 없는 형상에 이르러서야 다시 올라간다.

Mori called this dip the uncanny valley.
모리는 이 하락을 불쾌한 골짜기라고 불렀다.

Several explanations have been proposed.
여러 설명이 제시되어 왔다.

Near-human faces may trigger an instinct to avoid sources of disease, since subtle abnormalities in appearance can signal illness.
인간에 가까운 얼굴은 질병의 원천을 피하려는 본능을 촉발할 수 있는데, 외모의 미묘한 이상이 질병의 신호일 수 있기 때문이다.

Another theory holds that the discomfort comes from conflicting cues: a face that looks human but moves mechanically leaves the brain unable to categorize it.
또 다른 이론은 불편함이 상충하는 단서에서 온다고 본다. 인간처럼 보이지만 기계적으로 움직이는 얼굴은 뇌가 그것을 분류하지 못하게 만든다.

The effect has practical consequences for animation and robotics.
이 효과는 애니메이션과 로봇 공학에 실제적인 결과를 가져온다.

Designers often deliberately make characters cartoonish rather than realistic, because a clearly artificial figure is easier to like than one that strives for realism and falls slightly short.
디자이너들은 흔히 의도적으로 캐릭터를 사실적이기보다 만화처럼 만드는데, 명백히 인공적인 형상이 사실성을 추구하다 약간 모자란 것보다 좋아하기 쉽기 때문이다.

해석 · The Beauty of Ruins

Since the eighteenth century, Europeans have found a peculiar pleasure in ruins.
18세기 이후 유럽인들은 폐허에서 독특한 즐거움을 발견해 왔다.

Wealthy landowners even built artificial ruins, crumbling towers and broken arches designed to look ancient, in their gardens.
부유한 지주들은 심지어 정원에 고대처럼 보이도록 설계된 무너져 가는 탑과 부서진 아치 같은 인공 폐허를 짓기도 했다.

Part of the appeal lay in melancholy: ruins remind us that even the greatest achievements decay, and that our own lives are brief.
매력의 일부는 우수에 있었다. 폐허는 가장 위대한 업적조차 쇠퇴하며 우리 자신의 삶도 짧다는 것을 상기시킨다.

Yet ruins also stimulate imagination in a way complete buildings do not.
그러나 폐허는 또한 온전한 건물이 하지 못하는 방식으로 상상력을 자극한다.

A broken column invites the viewer to picture the temple it once supported, filling in what is missing.
부서진 기둥은 보는 사람이 그것이 한때 떠받쳤던 신전을 떠올리며 빠진 것을 채우도록 이끈다.

The ruin becomes a collaboration between the past and the observer.
폐허는 과거와 관찰자 사이의 협업이 된다.

In recent decades, a related fascination has grown around abandoned factories, shopping malls, and entire cities, sometimes called "ruin porn" by its critics.
최근 수십 년 동안 버려진 공장, 쇼핑몰, 도시 전체를 둘러싼 비슷한 매혹이 커졌는데, 비판자들은 이를 때로 '폐허 포르노'라고 부른다.

The critics point out that, unlike ancient temples, these modern ruins often mark recent economic disasters that still affect real communities.
비판자들은 고대 신전과 달리 이 현대의 폐허들이 흔히 여전히 실제 공동체에 영향을 미치는 최근의 경제적 재난을 나타낸다고 지적한다.

Treating them as beautiful images, they argue, can turn people's ongoing hardship into an aesthetic spectacle for outsiders.
그들은 그것을 아름다운 이미지로 취급하는 것이 사람들이 계속 겪고 있는 고난을 외부인을 위한 미적 구경거리로 바꿀 수 있다고 주장한다.

해석 · The Anxiety of Influence

Every writer begins as a reader, absorbing the styles and visions of earlier authors.
모든 작가는 독자로 시작하여 앞선 작가들의 문체와 비전을 흡수한다.

The critic Harold Bloom argued that this inheritance is not simply a gift but a burden.
비평가 해럴드 블룸은 이 유산이 단순한 선물이 아니라 짐이라고 주장했다.

Strong poets, he claimed, feel threatened by the greatness of their predecessors, fearing that everything worth saying has already been said.
그는 강한 시인들이 선배들의 위대함에 위협을 느끼며, 말할 가치가 있는 모든 것이 이미 말해졌을까 두려워한다고 주장했다.

To create something original, they must deliberately misread earlier poets, twisting their ideas to make space for their own.
독창적인 무언가를 창조하려면, 그들은 의도적으로 앞선 시인들을 오독하여 자신만의 공간을 만들기 위해 그들의 생각을 비틀어야 한다.

Bloom called this struggle the anxiety of influence.
블룸은 이 투쟁을 영향에 대한 불안이라고 불렀다.

His theory reversed a common assumption that influence diminishes originality.
그의 이론은 영향이 독창성을 감소시킨다는 흔한 가정을 뒤집었다.

For Bloom, originality does not come from escaping tradition but from wrestling with it: the most original poets are often those most deeply shaped by the predecessors they resist.
블룸에게 독창성은 전통에서 벗어나는 데서가 아니라 전통과 씨름하는 데서 나온다. 가장 독창적인 시인들은 흔히 그들이 저항하는 선배들에게 가장 깊이 영향받은 사람들이다.

Critics have objected that the theory describes literature as a contest among a few great men, ignoring the cooperative and communal ways in which many writers, especially those outside the traditional canon, relate to their sources.
비판자들은 이 이론이 문학을 소수의 위대한 남성들 사이의 경쟁으로 묘사하며, 많은 작가, 특히 전통적 정전 밖의 작가들이 자신의 원천과 관계 맺는 협력적이고 공동체적인 방식을 무시한다고 반박해 왔다.

해석 · Who Decides the Classics?

Every literature curriculum includes certain works and excludes others, and the resulting list is often called the canon.
모든 문학 교육과정은 특정 작품을 포함하고 다른 것들을 제외하며, 그 결과로 생긴 목록을 흔히 정전이라고 부른다.

It is tempting to think that the canon simply contains the best works, selected by time for their enduring quality.
정전이 시간에 의해 지속적인 질로 선택된 가장 훌륭한 작품들을 단순히 담고 있다고 생각하고 싶어진다.

Historians of literature have shown that the process is more complicated.
문학사가들은 그 과정이 더 복잡하다는 것을 보여 주었다.

Works survive partly because they are taught, reprinted, and discussed, and these activities depend on publishers, universities, and critics whose tastes reflect their own social position.
작품들은 부분적으로 가르쳐지고, 재출간되고, 논의되기 때문에 살아남으며, 이러한 활동은 자기 사회적 위치를 반영하는 취향을 가진 출판사, 대학, 비평가들에게 달려 있다.

For long periods, writing by women and by members of minority groups was rarely published or studied, regardless of its quality.
오랜 기간 동안 여성과 소수 집단 구성원들의 글은 그 질과 관계없이 거의 출판되거나 연구되지 않았다.

Some argue that this history proves the canon is merely an expression of power.
어떤 이들은 이 역사가 정전이 단지 권력의 표현임을 증명한다고 주장한다.

Others reply that exclusion in the past does not mean that judgments of quality are meaningless; it means that those judgments must be applied more widely and honestly.
다른 이들은 과거의 배제가 질에 대한 판단이 무의미하다는 뜻이 아니라, 그 판단이 더 넓고 정직하게 적용되어야 한다는 뜻이라고 응수한다.

Recent decades have seen many previously ignored works enter the canon, which suggests that the list is not fixed but continually revised.
최근 수십 년 동안 이전에 무시되었던 많은 작품이 정전에 들어왔는데, 이는 그 목록이 고정된 것이 아니라 계속 수정된다는 것을 시사한다.

The canon, in this view, is best understood as an ongoing argument about value rather than a final verdict.
이 관점에서 정전은 최종 판결이라기보다 가치에 관한 진행 중인 논쟁으로 이해하는 것이 가장 좋다.

해석 · Singing the Epic

For centuries, scholars puzzled over how Homer's Iliad and Odyssey could have been composed before writing was widely used in Greece.
수 세기 동안 학자들은 호메로스의 『일리아스』와 『오디세이아』가 그리스에서 글쓰기가 널리 쓰이기 전에 어떻게 지어질 수 있었는지 의아해했다.

How could a poet memorize tens of thousands of lines?
한 시인이 어떻게 수만 행을 외울 수 있었을까?

In the 1930s, the American scholar Milman Parry traveled to Yugoslavia to study living oral poets who performed long heroic songs.
1930년대 미국 학자 밀먼 패리는 긴 영웅 노래를 공연하는 살아 있는 구전 시인들을 연구하러 유고슬라비아로 갔다.

He discovered that they did not memorize fixed texts.
그는 그들이 고정된 텍스트를 외우지 않는다는 것을 발견했다.

Instead, they composed during performance, using a large stock of traditional phrases that fit the rhythm of the verse, such as "swift-footed Achilles" or "rosy-fingered dawn" in Homer.
대신 그들은 공연 중에 작시했는데, 호메로스의 '발 빠른 아킬레우스'나 '장밋빛 손가락의 새벽'처럼 시의 운율에 맞는 많은 전통적 문구를 사용했다.

These formulas allowed singers to produce verse fluently, and each performance of the same story differed in its details.
이러한 정형구 덕분에 가수들은 유창하게 시를 지어낼 수 있었고, 같은 이야기의 공연마다 세부가 달랐다.

Parry's discovery explained why Homer repeats phrases so often, a feature that had seemed to some readers a weakness.
패리의 발견은 일부 독자들에게 약점으로 보였던 특징, 즉 호메로스가 왜 그토록 자주 문구를 반복하는지 설명했다.

The repetitions were not lapses of imagination but tools of a living craft.
반복은 상상력의 결함이 아니라 살아 있는 기예의 도구였다.

His work transformed our understanding of the epics, revealing them as products of a long tradition of performance rather than the fixed creations of a single author working at a desk.
그의 연구는 서사시에 대한 우리의 이해를 바꾸어, 그것을 책상에서 작업한 한 저자의 고정된 창작물이 아니라 오랜 공연 전통의 산물로 드러냈다.

해석 · The Silence of the Archive

Historians depend on archives, but archives are not neutral collections of the past.
역사가들은 기록 보관소에 의존하지만, 기록 보관소는 과거의 중립적인 수집물이 아니다.

They contain what someone decided to record and what someone else decided to keep.
그것들은 누군가가 기록하기로 결정한 것과 다른 누군가가 보존하기로 결정한 것을 담고 있다.

Governments preserved tax records, court cases, and official correspondence, while the daily lives of peasants, enslaved people, and women often went unwritten.
정부들은 세금 기록, 재판 기록, 공식 서신을 보존했지만, 농민, 노예가 된 사람들, 여성의 일상은 흔히 기록되지 않았다.

When such people do appear, it is frequently through the eyes of officials who were taxing, judging, or controlling them.
그런 사람들이 등장할 때도, 그것은 흔히 그들에게 세금을 매기거나, 그들을 재판하거나, 통제하던 관리들의 눈을 통해서다.

Historians have developed methods for reading these sources "against the grain."
역사가들은 이러한 사료를 '결을 거슬러' 읽는 방법을 발전시켜 왔다.

A court record written to condemn a rebel may still reveal, in the testimony it reports, the rebel's grievances and ways of speaking.
반란자를 단죄하려고 쓰인 재판 기록도 그것이 전하는 증언 속에서 반란자의 불만과 말하는 방식을 여전히 드러낼 수 있다.

Historians also turn to other kinds of evidence, such as songs, objects, and archaeological remains, to recover lives that left few written traces.
역사가들은 또한 글로 된 흔적을 거의 남기지 않은 삶을 복원하기 위해 노래, 물건, 고고학적 유물 같은 다른 종류의 증거에 기댄다.

These approaches cannot fully restore what was lost.
이러한 접근이 잃어버린 것을 완전히 복원할 수는 없다.

They do, however, remind us that the silence of the archive is itself historical evidence, telling us whose lives were considered worth recording.
그러나 그것들은 기록 보관소의 침묵 그 자체가 누구의 삶이 기록할 가치가 있다고 여겨졌는지 알려 주는 역사적 증거임을 상기시킨다.

해석 · A Trap of Rising Powers

The ancient Greek historian Thucydides explained the Peloponnesian War with a famous sentence: it was the rise of Athens and the fear this inspired in Sparta that made war inevitable.
고대 그리스의 역사가 투키디데스는 펠로폰네소스 전쟁을 유명한 문장으로 설명했다. 전쟁을 불가피하게 만든 것은 아테네의 부상과 그것이 스파르타에 불러일으킨 두려움이었다.

The political scientist Graham Allison has used the phrase "Thucydides trap" to describe the danger that arises when a rising power threatens to displace an established one.
정치학자 그레이엄 앨리슨은 부상하는 강대국이 기존 강대국을 대체하겠다고 위협할 때 생기는 위험을 묘사하려고 '투키디데스의 함정'이라는 표현을 사용해 왔다.

Examining sixteen such cases over five centuries, he found that twelve ended in war.
그는 5세기에 걸친 그러한 16개 사례를 조사하여 12개가 전쟁으로 끝났음을 발견했다.

The concept has been widely applied to relations between the United States and China.
이 개념은 미국과 중국의 관계에 널리 적용되어 왔다.

Critics have raised several objections.
비판자들은 몇 가지 반론을 제기했다.

The selection of cases is open to dispute, since different historians might count different rivalries or classify them differently.
사례 선정은 논란의 여지가 있는데, 역사가마다 다른 경쟁 관계를 셀 수 있거나 그것들을 다르게 분류할 수 있기 때문이다.

Some argue that Thucydides himself emphasized many causes, including miscalculation and domestic politics, not merely a shift in power.
어떤 이들은 투키디데스 자신이 단지 힘의 변화뿐 아니라 오판과 국내 정치를 포함한 많은 원인을 강조했다고 주장한다.

Others note that nuclear weapons have changed the costs of great-power war so drastically that historical patterns may no longer apply.
다른 이들은 핵무기가 강대국 전쟁의 비용을 너무나 극적으로 바꿔서 역사적 패턴이 더 이상 적용되지 않을 수 있다고 지적한다.

Allison himself insists that war is not inevitable; the four cases that avoided it, he argues, show that careful statecraft can escape the trap.
앨리슨 자신은 전쟁이 불가피하지 않다고 강조한다. 그는 전쟁을 피한 네 사례가 신중한 국정 운영이 그 함정을 벗어날 수 있음을 보여 준다고 주장한다.

해석 · Nations as Imagined Communities

Members of even the smallest nation will never meet most of their fellow members, yet they feel a deep bond with them.
가장 작은 나라의 구성원들조차 대부분의 동료 구성원을 결코 만나지 못하겠지만, 그들은 그들과 깊은 유대감을 느낀다.

The political scientist Benedict Anderson called nations "imagined communities," not to suggest that they are false, but to emphasize that they exist in the minds of their members.
정치학자 베네딕트 앤더슨은 국가를 '상상된 공동체'라고 불렀는데, 그것이 거짓이라는 것이 아니라 구성원들의 마음속에 존재한다는 점을 강조하기 위해서였다.

Anderson asked how such imagining became possible.
앤더슨은 그러한 상상이 어떻게 가능해졌는지 물었다.

Part of his answer was print capitalism.
그의 답의 일부는 인쇄 자본주의였다.

As publishers sought larger markets, they printed books and newspapers in local languages rather than Latin, creating communities of readers who shared a language and followed the same events at the same time.
출판업자들이 더 큰 시장을 찾으면서 라틴어가 아닌 지역 언어로 책과 신문을 인쇄했고, 언어를 공유하며 같은 사건을 동시에 따라가는 독자 공동체를 만들어 냈다.

A person reading the morning newspaper knew that thousands of others were reading the same stories, a ritual that made an invisible community feel real.
아침 신문을 읽는 사람은 수천 명의 다른 사람들이 같은 기사를 읽고 있다는 것을 알았고, 그 의례는 보이지 않는 공동체를 실재하는 것처럼 느끼게 했다.

Anderson's theory challenged the view that nations are ancient and natural, existing long before states gave them political form.
앤더슨의 이론은 국가가 오래되고 자연스러우며, 국가가 정치적 형태를 부여하기 오래전부터 존재했다는 견해에 도전했다.

Critics reply that many nations drew on older ethnic and religious identities, which print did not invent but transformed.
비판자들은 많은 국가가 더 오래된 민족적·종교적 정체성에 기댔으며, 인쇄는 그것을 발명한 것이 아니라 변형했다고 응수한다.

The debate concerns not whether nations are real, since they clearly shape lives, but how and when they came to be.
그 논쟁은 국가가 실재하는지에 관한 것이 아니라, 국가가 분명히 삶을 형성하므로, 그것이 어떻게 그리고 언제 생겨났는지에 관한 것이다.

해석 · The Great Exchange

When Columbus reached the Americas in 1492, he set off an exchange of plants, animals, and microbes between two hemispheres that had been separated for millennia.
콜럼버스가 1492년 아메리카에 도착했을 때, 그는 수천 년 동안 분리되어 있던 두 반구 사이의 식물, 동물, 미생물 교환을 촉발했다.

Historians call this the Columbian Exchange.
역사가들은 이것을 콜럼버스 교환이라고 부른다.

Potatoes and maize from the Americas transformed agriculture in Europe, Africa, and Asia, supporting rapid population growth.
아메리카에서 온 감자와 옥수수는 유럽, 아프리카, 아시아의 농업을 변화시켜 빠른 인구 증가를 뒷받침했다.

Horses, cattle, and wheat from Europe reshaped life in the Americas.
유럽에서 온 말, 소, 밀은 아메리카의 삶을 재편했다.

The most devastating transfer, however, was disease.
그러나 가장 파괴적인 이동은 질병이었다.

Smallpox, measles, and influenza, to which Native Americans had no immunity, killed a large majority of the indigenous population in many regions within a century.
아메리카 원주민이 면역이 없던 천연두, 홍역, 인플루엔자는 많은 지역에서 한 세기 안에 원주민 인구의 대다수를 죽였다.

This catastrophe made European conquest far easier than military strength alone would have allowed.
이 재앙은 유럽의 정복을 군사력만으로 가능했을 것보다 훨씬 쉽게 만들었다.

The exchange was strikingly uneven partly because Eurasia had domesticated many more animals, and living closely with livestock had exposed its populations to diseases that jumped from animals to humans over thousands of years.

이 교환이 놀랄 만큼 불균등했던 것은 부분적으로 유라시아가 훨씬 많은 동물을 가축화했고, 가축과 가까이 사는 것이 수천 년에 걸쳐 동물에서 인간으로 옮겨 온 질병에 그 인구를 노출시켰기 때문이다.

The diseases that devastated the Americas were, in a sense, a biological consequence of Eurasian agricultural history.
아메리카를 황폐하게 한 질병들은 어떤 의미에서 유라시아 농업사의 생물학적 결과였다.

해석 · After the Plague

Between 1347 and 1351, the Black Death killed perhaps a third or more of Europe's population.
1347년에서 1351년 사이 흑사병은 아마 유럽 인구의 3분의 1 이상을 죽였다.

The human cost was immense, but historians have noted that the survivors, particularly laborers, often found their circumstances improved.
인간적 대가는 막대했지만, 역사가들은 생존자들, 특히 노동자들이 흔히 형편이 나아졌다는 것을 지적해 왔다.

With so many workers dead, labor became scarce while land remained plentiful.
너무나 많은 노동자가 죽어 노동력은 부족해졌지만 토지는 여전히 풍부했다.

Peasants could demand higher wages or move to landlords offering better terms.
농민들은 더 높은 임금을 요구하거나 더 나은 조건을 제시하는 지주에게로 옮겨 갈 수 있었다.

Authorities tried to resist, passing laws that fixed wages at pre-plague levels and restricted workers' movement.
당국은 저항하려 했고, 임금을 흑사병 이전 수준에 고정하고 노동자의 이동을 제한하는 법을 통과시켰다.

These laws proved difficult to enforce and contributed to uprisings such as the English Peasants' Revolt of 1381.
이 법들은 집행하기 어려운 것으로 드러났고 1381년 영국 농민 반란 같은 봉기에 일조했다.

In western Europe, the old system of serfdom gradually weakened.
서유럽에서 옛 농노제는 점차 약해졌다.

Interestingly, in parts of eastern Europe the same labor shortage led landlords to tighten control over peasants instead.
흥미롭게도 동유럽 일부 지역에서는 같은 노동력 부족이 지주들로 하여금 오히려 농민에 대한 통제를 강화하게 만들었다.

The contrast shows that a demographic shock does not determine its own consequences; the outcome depended on the relative power of landlords and peasants in each region.
이 대조는 인구학적 충격이 그 결과를 스스로 결정하지 않는다는 것을 보여 준다. 결과는 각 지역에서 지주와 농민의 상대적 힘에 달려 있었다.

해석 · The Myth of Tulip Mania

Tulip mania in the Dutch Republic of the 1630s is often cited as history's first great speculative bubble.
1630년대 네덜란드 공화국의 튤립 광풍은 흔히 역사상 최초의 거대한 투기 거품으로 인용된다.

According to the familiar story, prices for single tulip bulbs rose to the value of houses, ordinary people sold everything to invest, and when the market collapsed in 1637, the Dutch economy was ruined.
익숙한 이야기에 따르면 튤립 구근 하나의 가격이 집값까지 올랐고, 평범한 사람들이 투자하려고 모든 것을 팔았으며, 1637년 시장이 붕괴했을 때 네덜란드 경제는 파탄 났다.

Much of this account comes from moralizing pamphlets written at the time and from a popular nineteenth-century book that repeated them uncritically.
이 설명의 상당 부분은 당시 쓰인 교훈적 소책자들과 그것을 무비판적으로 반복한 19세기의 인기 있는 책에서 나왔다.

Historians who examined contracts and court records found a more modest picture.
계약서와 법원 기록을 조사한 역사가들은 더 소박한 그림을 발견했다.

The extreme prices applied to a small number of rare varieties, the buyers were mostly wealthy merchants rather than ordinary people, and there is little evidence of widespread bankruptcies or economic damage.
극단적인 가격은 소수의 희귀 품종에 해당했고, 구매자는 평범한 사람들이 아니라 대부분 부유한 상인들이었으며, 광범위한 파산이나 경제적 피해의 증거는 거의 없다.

Many contracts were simply not enforced after the collapse.
많은 계약은 붕괴 이후 그냥 집행되지 않았다.

The Dutch economy continued to flourish in the following decades.
네덜란드 경제는 이후 수십 년 동안 계속 번영했다.

Why did the exaggerated version survive?
과장된 이야기는 왜 살아남았을까?

Perhaps because it offered a vivid moral lesson about greed, and stories that confirm our beliefs about human folly are retold more often than careful corrections.
아마도 그것이 탐욕에 관한 생생한 도덕적 교훈을 주었고, 인간의 어리석음에 대한 우리의 믿음을 확인해 주는 이야기는 신중한 정정보다 더 자주 다시 이야기되기 때문일 것이다.

해석 · Why Europe Pulled Ahead

Around 1750, the most advanced regions of China, such as the Yangtze River Delta, appear to have been roughly as prosperous as the most advanced regions of Europe.
1750년경 양쯔강 삼각주 같은 중국의 가장 발전한 지역들은 유럽의 가장 발전한 지역들만큼 대략 번영했던 것으로 보인다.

Both had dense populations, active markets, and sophisticated agriculture.
둘 다 인구가 조밀하고, 시장이 활발하며, 정교한 농업을 갖추고 있었다.

Within a century, however, northwestern Europe had industrialized and surged far ahead.
그러나 한 세기 안에 서북유럽은 산업화하여 훨씬 앞서 나갔다.

Explaining this "Great Divergence" is one of the central problems of economic history.
이 '대분기'를 설명하는 것은 경제사의 핵심 문제 중 하나다.

Older explanations emphasized supposed European advantages in culture, science, or institutions that had developed over many centuries.
예전 설명들은 수 세기에 걸쳐 발전한 문화, 과학, 제도에서 유럽이 가졌다고 여겨진 우위를 강조했다.

The historian Kenneth Pomeranz offered a different account, stressing two fortunate circumstances.
역사가 케네스 포머랜즈는 두 가지 운 좋은 상황을 강조하며 다른 설명을 제시했다.

Britain had large deposits of coal located close to where they were needed, providing cheap energy, and its overseas colonies supplied food, cotton, and timber that relieved pressure on its limited land.
영국에는 필요한 곳 가까이에 대량의 석탄 매장지가 있어 값싼 에너지를 제공했고, 해외 식민지들은 식량, 면화, 목재를 공급해 제한된 토지에 대한 압박을 덜어 주었다.

Without these, Pomeranz argued, Europe might have faced the same ecological limits that constrained China.
포머랜즈는 이것들이 없었다면 유럽도 중국을 제약했던 것과 같은 생태적 한계에 직면했을지 모른다고 주장했다.

His thesis remains debated, but it shifted attention from long-term cultural superiority to the contingent factors of geography and empire.
그의 주장은 여전히 논쟁 중이지만, 관심을 장기적인 문화적 우월성에서 지리와 제국이라는 우연적 요인으로 옮겨 놓았다.

해석 · The Protestant Ethic Revisited

In 1905 the sociologist Max Weber proposed that Protestantism, especially Calvinism, helped give rise to modern capitalism.
1905년 사회학자 막스 베버는 개신교, 특히 칼뱅주의가 근대 자본주의를 낳는 데 도움을 주었다고 제안했다.

Calvinists believed that God had already determined who would be saved, yet no one could know for certain.
칼뱅주의자들은 신이 누가 구원받을지 이미 정했지만 아무도 확실히 알 수 없다고 믿었다.

Weber argued that this anxiety led believers to seek signs of their salvation in disciplined work and worldly success, while their religion forbade spending wealth on luxury.

베버는 이 불안이 신자들로 하여금 규율 있는 노동과 세속적 성공에서 구원의 징표를 찾게 했으며, 그들의 종교는 부를 사치에 쓰는 것을 금지했다고 주장했다.

The result was a habit of working hard and reinvesting profits, the very behavior capitalism requires.
그 결과는 열심히 일하고 이윤을 재투자하는 습관이었는데, 바로 자본주의가 요구하는 행동이었다.

The thesis has been both influential and heavily criticized.
이 주장은 큰 영향을 미쳤고 동시에 거센 비판을 받았다.

Historians point out that capitalist practices flourished earlier in Catholic regions such as northern Italy.
역사가들은 자본주의적 관행이 북부 이탈리아 같은 가톨릭 지역에서 더 일찍 번성했다고 지적한다.

One statistical study of Prussia found that Protestant areas were indeed more prosperous, but attributed the difference to higher literacy, since Protestants were encouraged to read the Bible themselves.
프로이센에 관한 한 통계 연구는 개신교 지역이 실제로 더 번영했음을 발견했지만, 개신교도들이 스스로 성경을 읽도록 권장되었기 때문에 그 차이를 더 높은 문해율에 돌렸다.

On this account, religion mattered, but through education rather than through a distinctive work ethic.
이 설명에서는 종교가 중요했지만, 독특한 노동 윤리가 아니라 교육을 통해서였다.

The debate illustrates how a correlation between two things can be explained by quite different causal paths.
이 논쟁은 두 가지 사이의 상관관계가 상당히 다른 인과 경로로 설명될 수 있음을 보여 준다.

해석 · The Charter and Its Legend

Magna Carta, sealed by King John of England in 1215, is celebrated as a founding document of liberty, cited in the constitutions of many countries.
1215년 잉글랜드의 존 왕이 날인한 마그나 카르타는 자유의 창립 문서로 칭송받으며 많은 나라의 헌법에서 인용된다.

Its original purpose was far narrower.
그것의 원래 목적은 훨씬 좁았다.

It was a peace treaty between an unpopular king and rebellious barons, mostly concerned with feudal privileges such as inheritance rights and limits on royal taxation of the nobility.
그것은 인기 없는 왕과 반항적인 귀족들 사이의 평화 조약으로, 주로 상속권이나 귀족에 대한 왕실 과세의 제한 같은 봉건적 특권에 관한 것이었다.

Most English people of the time, who were unfree peasants, gained little from it.
당시 대부분의 잉글랜드 사람들은 부자유한 농민이었으므로 그것으로부터 얻은 것이 거의 없었다.

Within months, the pope annulled the charter and war resumed.
몇 달 안에 교황은 그 헌장을 무효화했고 전쟁이 재개되었다.

The document's later fame grew from reinterpretation.
그 문서의 이후 명성은 재해석에서 자라났다.

In the seventeenth century, lawyers opposing the claims of absolute monarchs read one clause, which promised that no free man would be imprisoned except by lawful judgment, as a general guarantee of due process.
17세기에 절대 군주의 주장에 반대하던 법률가들은 자유인은 적법한 판결에 의하지 않고는 투옥되지 않는다고 약속한 한 조항을 적법 절차에 대한 일반적 보장으로 읽었다.

Over time, "free man" came to be understood as applying to everyone.
시간이 흐르면서 '자유인'은 모든 사람에게 적용되는 것으로 이해되게 되었다.

The Magna Carta we celebrate is thus partly a creation of later generations, which shows how the meaning of a historical document can grow far beyond what its authors intended.
따라서 우리가 기념하는 마그나 카르타는 부분적으로 후대가 만들어 낸 것이며, 이는 역사적 문서의 의미가 그 작성자들이 의도한 것을 훨씬 넘어 자라날 수 있음을 보여 준다.

해석 · Reading the Stone

In 1799 French soldiers in Egypt found a stone slab inscribed with the same decree in three scripts: Egyptian hieroglyphs, a cursive Egyptian script, and ancient Greek.
1799년 이집트에 있던 프랑스 병사들은 같은 칙령이 세 가지 문자, 즉 이집트 상형 문자, 이집트 흘림 문자, 고대 그리스어로 새겨진 석판을 발견했다.

Since scholars could read Greek, the Rosetta Stone offered a key to hieroglyphs, which no one had understood for over a thousand years.
학자들이 그리스어를 읽을 수 있었으므로, 로제타석은 천 년 넘게 아무도 이해하지 못했던 상형 문자에 대한 열쇠를 제공했다.

The decipherment nevertheless took more than two decades.
그럼에도 해독에는 20년 넘게 걸렸다.

A major obstacle was a mistaken assumption.
주요 장애물은 잘못된 가정이었다.

Most scholars believed hieroglyphs were purely symbolic, each picture representing an idea rather than a sound.
대부분의 학자는 상형 문자가 순전히 상징적이어서 각 그림이 소리가 아니라 관념을 나타낸다고 믿었다.

The French scholar Jean-François Champollion, who knew Coptic, a late form of the Egyptian language, realized that many signs represented sounds.
이집트어의 후기 형태인 콥트어를 알았던 프랑스 학자 장프랑수아 샹폴리옹은 많은 기호가 소리를 나타낸다는 것을 깨달았다.

By matching the names of rulers, enclosed in oval frames, with their Greek equivalents, he worked out the sound values of individual signs.
타원형 테두리에 둘러싸인 통치자들의 이름을 그리스어 대응어와 맞춰 봄으로써, 그는 개별 기호의 음가를 알아냈다.

He then discovered that the system mixed sound signs with signs for meaning, which explained why earlier attempts had failed.
그는 이어서 그 체계가 소리 기호와 의미 기호를 섞어 쓴다는 것을 발견했고, 이는 이전 시도들이 왜 실패했는지 설명해 주었다.

The story shows that even with the right evidence in hand, progress can be blocked by an assumption that no one thinks to question.
이 이야기는 올바른 증거를 손에 쥐고 있어도 아무도 의문을 제기하려 하지 않는 가정 때문에 진전이 막힐 수 있음을 보여 준다.

해석 · Blessing or Trap?

The adoption of agriculture about ten thousand years ago is usually presented as a great leap forward for humanity.
약 1만 년 전 농업의 채택은 보통 인류에게 큰 도약으로 소개된다.

Farming produced food surpluses, which supported cities, writing, and specialized professions.
농경은 잉여 식량을 생산했고, 그것이 도시, 문자, 전문 직업을 뒷받침했다.

Yet archaeological evidence complicates this picture.
그러나 고고학적 증거는 이 그림을 복잡하게 만든다.

Skeletons of early farmers often show signs of poorer health than those of the hunter-gatherers who preceded them: shorter stature, more tooth decay, and more evidence of nutritional stress and infectious disease.
초기 농부들의 유골은 흔히 그들보다 앞선 수렵 채집인들의 유골보다 더 나쁜 건강 상태의 징후를 보인다. 더 작은 키, 더 많은 충치, 영양 스트레스와 감염병의 증거가 더 많다.

Diets based on a few crops were less varied, and dense settlements near livestock allowed diseases to spread.
몇 가지 작물에 기반한 식단은 덜 다양했고, 가축 가까이 밀집한 정착지는 질병이 퍼지게 했다.

Why, then, did people adopt farming?
그렇다면 사람들은 왜 농경을 채택했을까?

One answer is that the choice was never made all at once.
한 가지 답은 그 선택이 결코 한꺼번에 이루어지지 않았다는 것이다.

Each small step, such as tending wild plants more carefully, offered immediate benefits, and as populations grew to depend on the extra food, returning to foraging became impossible.
야생 식물을 더 신중히 돌보는 것 같은 각각의 작은 단계는 즉각적인 이익을 주었고, 인구가 그 추가 식량에 의존할 만큼 늘어나자 채집으로 돌아가는 것은 불가능해졌다.

Agriculture benefited populations as a whole by allowing more people to live, even if the average individual lived a harder life.
농업은 평균적인 개인이 더 힘든 삶을 살았더라도 더 많은 사람이 살 수 있게 함으로써 인구 전체에는 이익이 되었다.

해석 · Is Willpower a Fuel?

In the late 1990s, psychologists proposed that self-control draws on a limited resource, like a muscle that tires with use.
1990년대 후반 심리학자들은 자기 통제가 사용하면 지치는 근육처럼 제한된 자원에 의존한다고 제안했다.

In a famous experiment, people who resisted eating cookies and ate radishes instead gave up sooner on a difficult puzzle than those who had been allowed to eat the cookies.
유명한 실험에서 쿠키를 먹지 않고 대신 무를 먹은 사람들은 쿠키를 먹도록 허락받은 사람들보다 어려운 퍼즐을 더 빨리 포기했다.

This "ego depletion" effect was replicated in hundreds of studies and became a popular explanation for why people break diets late in the day.
이 '자아 고갈' 효과는 수백 편의 연구에서 재현되었고, 사람들이 왜 하루가 저물 무렵 다이어트를 깨뜨리는지에 대한 인기 있는 설명이 되었다.

In 2016, however, a large coordinated project involving more than twenty laboratories tested the effect using a standardized procedure.
그러나 2016년 스무 개가 넘는 연구실이 참여한 대규모 공동 프로젝트가 표준화된 절차로 그 효과를 검증했다.

The result was close to zero.
결과는 0에 가까웠다.

Researchers have since debated why so many earlier studies seemed to support the effect.
이후 연구자들은 왜 그렇게 많은 초기 연구가 그 효과를 뒷받침하는 것처럼 보였는지 논쟁해 왔다.

One possibility is publication bias, the tendency of journals to publish positive findings while studies that found nothing went unpublished.
한 가지 가능성은 출판 편향, 즉 아무것도 발견하지 못한 연구는 출판되지 않는 반면 학술지가 긍정적 발견을 출판하는 경향이다.

Another is that the effect depends on people's beliefs: those who think willpower is limited seem more likely to show depletion than those who think it is not.
또 다른 가능성은 그 효과가 사람들의 믿음에 달려 있다는 것이다. 의지력이 제한되어 있다고 생각하는 사람들이 그렇지 않다고 생각하는 사람들보다 고갈을 보일 가능성이 더 큰 것 같다.

If so, the theory may have partly created the phenomenon it described.
그렇다면 그 이론이 자신이 기술한 현상을 부분적으로 만들어 냈을 수도 있다.

해석 · Mindsets and Their Measured Effects

The psychologist Carol Dweck distinguished between a fixed mindset, the belief that intelligence is an unchangeable trait, and a growth mindset, the belief that it can be developed through effort.
심리학자 캐럴 드웩은 지능이 바뀔 수 없는 특성이라는 믿음인 고정 마인드셋과, 노력을 통해 발전할 수 있다는 믿음인 성장 마인드셋을 구분했다.

Students with a growth mindset, her research suggested, respond to failure by working harder rather than giving up.
그녀의 연구는 성장 마인드셋을 가진 학생들이 실패에 포기하기보다 더 열심히 노력하는 것으로 반응한다고 시사했다.

The idea spread rapidly through schools, where teachers were encouraged to praise effort rather than talent.
이 생각은 학교 전반으로 빠르게 퍼졌고, 교사들은 재능보다 노력을 칭찬하도록 권장받았다.

Large studies conducted later reported more modest results.
이후 수행된 대규모 연구들은 더 소박한 결과를 보고했다.

A brief online mindset intervention given to thousands of students produced a small average improvement in grades, concentrated mainly among lower-achieving students.
수천 명의 학생에게 실시된 짧은 온라인 마인드셋 개입은 성적에서 작은 평균 향상을 낳았는데, 그것은 주로 성취도가 낮은 학생들에게 집중되었다.

Some reviews found even weaker effects.
일부 검토는 더 약한 효과를 발견했다.

Defenders note that a small effect from a cheap, brief intervention can still be valuable when applied to many students.
옹호자들은 값싸고 짧은 개입에서 나온 작은 효과라도 많은 학생에게 적용되면 여전히 가치 있을 수 있다고 지적한다.

Dweck herself has criticized simplified versions of her idea, such as praising effort that does not lead to learning or simply telling students to "try harder."
드웩 자신도 학습으로 이어지지 않는 노력을 칭찬하거나 그냥 학생들에게 '더 노력해라'라고 말하는 것 같은 단순화된 버전의 자기 생각을 비판해 왔다.

The episode suggests that a sound psychological insight can lose much of its value when it becomes a slogan.
이 일화는 건전한 심리학적 통찰이 구호가 되면 그 가치의 상당 부분을 잃을 수 있음을 시사한다.

해석 · The Marshmallow Test Revisited

In the 1960s and 1970s, researchers at Stanford offered young children a choice: one marshmallow now, or two if they could wait alone for about fifteen minutes.
1960~70년대에 스탠퍼드의 연구자들은 어린아이들에게 지금 마시멜로 하나, 또는 약 15분을 혼자 기다릴 수 있으면 두 개라는 선택을 제시했다.

Follow-up studies years later reported that children who waited longer had better test scores and other positive outcomes as adolescents.
몇 년 뒤의 후속 연구는 더 오래 기다린 아이들이 청소년기에 더 좋은 시험 점수와 다른 긍정적 결과를 보였다고 보고했다.

The finding became a celebrated demonstration of the importance of self-control.
이 발견은 자기 통제의 중요성을 보여 주는 유명한 사례가 되었다.

A larger and more diverse study published in 2018 revisited the question.
2018년에 발표된 더 크고 다양한 연구가 이 질문을 다시 살폈다.

It found that the link between waiting and later achievement was much weaker than originally reported, and it shrank further once family income and early cognitive ability were taken into account.
그것은 기다림과 이후 성취 사이의 연관성이 원래 보고된 것보다 훨씬 약하며, 가정 소득과 초기 인지 능력을 고려하자 더 줄어든다는 것을 발견했다.

Other research suggested that waiting partly reflects how much children trust adults to keep promises.
다른 연구는 기다림이 부분적으로 아이들이 어른이 약속을 지킬 것이라고 얼마나 믿는지를 반영한다고 시사했다.

In one experiment, children who had just experienced an unreliable adult waited far less than those who had experienced a reliable one.
한 실험에서 방금 신뢰할 수 없는 어른을 경험한 아이들은 신뢰할 만한 어른을 경험한 아이들보다 훨씬 덜 기다렸다.

For a child whose environment is unpredictable, taking the treat immediately may be a rational choice rather than a failure of willpower.
환경이 예측 불가능한 아이에게 간식을 즉시 먹는 것은 의지력의 실패가 아니라 합리적인 선택일 수 있다.

The test may therefore measure circumstances as much as character.
따라서 그 실험은 성격만큼이나 환경을 측정하는 것일 수 있다.

해석 · Remembering What Never Happened

Memory does not work like a video recording.
기억은 비디오 녹화처럼 작동하지 않는다.

Each time we recall an event, we reconstruct it, and in the process details can be added, lost, or changed.
사건을 회상할 때마다 우리는 그것을 재구성하며, 그 과정에서 세부가 더해지거나, 사라지거나, 바뀔 수 있다.

The psychologist Elizabeth Loftus showed how easily this can happen.
심리학자 엘리자베스 로프터스는 이것이 얼마나 쉽게 일어날 수 있는지 보여 주었다.

In one study, people watched a film of a car accident and were asked how fast the cars were going when they "smashed" or when they "hit" each other.
한 연구에서 사람들은 자동차 사고 영상을 보고 차들이 서로 '박살 냈을' 때 또는 '부딪쳤을' 때 얼마나 빨리 가고 있었는지 질문받았다.

Those who heard "smashed" gave higher speed estimates and, a week later, were more likely to report seeing broken glass, although there was none in the film.
'박살 냈다'를 들은 사람들은 더 높은 속도 추정치를 내놓았고, 일주일 뒤 영상에 깨진 유리가 없었는데도 그것을 봤다고 보고할 가능성이 더 높았다.

In later studies, Loftus and her colleagues implanted entirely false childhood memories, such as being lost in a shopping mall, in a substantial minority of participants.
이후 연구에서 로프터스와 동료들은 상당수의 소수 참가자에게 쇼핑몰에서 길을 잃은 것 같은 완전히 거짓된 어린 시절 기억을 심었다.

These findings have serious implications for the legal system.
이러한 발견은 법체계에 심각한 함의를 지닌다.

Eyewitness testimony, which juries often find highly persuasive, can be shaped by the wording of police questions or by information encountered after the event.
배심원들이 흔히 매우 설득력 있다고 여기는 목격자 증언은 경찰 질문의 표현이나 사건 이후 접한 정보에 의해 형성될 수 있다.

Confidence is no guarantee of accuracy: a witness can be completely sure of a memory that is false.
확신은 정확성을 보장하지 않는다. 목격자는 거짓인 기억을 완전히 확신할 수 있다.

해석 · Changing Our Minds to Fit Our Actions

In a classic 1959 experiment, participants performed a boring task and were then paid either one dollar or twenty dollars to tell the next participant that it was interesting.
1959년의 고전적 실험에서 참가자들은 지루한 과제를 수행한 뒤 다음 참가자에게 그것이 재미있었다고 말하는 대가로 1달러 또는 20달러를 받았다.

Later, when asked how much they had actually enjoyed the task, those paid one dollar rated it as more enjoyable than those paid twenty.
나중에 실제로 과제를 얼마나 즐겼는지 질문받았을 때, 1달러를 받은 사람들이 20달러를 받은 사람들보다 그것을 더 즐거웠다고 평가했다.

The psychologist Leon Festinger explained the result with the theory of cognitive dissonance.
심리학자 레온 페스팅거는 그 결과를 인지 부조화 이론으로 설명했다.

Holding two inconsistent thoughts, such as "the task was boring" and "I told someone it was fun," creates discomfort that people are motivated to reduce.
'과제가 지루했다'와 '나는 누군가에게 그것이 재미있다고 말했다' 같은 두 가지 모순된 생각을 갖는 것은 불편함을 만들고, 사람들은 그것을 줄이려는 동기를 갖게 된다.

Those paid twenty dollars had a sufficient justification for lying: they did it for the money.
20달러를 받은 사람들에게는 거짓말에 대한 충분한 정당화가 있었다. 그들은 돈 때문에 그렇게 했다.

Those paid only one dollar lacked such a justification, so they resolved the conflict by changing their belief about the task.
1달러만 받은 사람들에게는 그런 정당화가 없었으므로, 그들은 과제에 대한 믿음을 바꿈으로써 갈등을 해소했다.

Dissonance theory helps explain why people who make great sacrifices for a cause often become its most devoted supporters.
부조화 이론은 어떤 대의를 위해 큰 희생을 치른 사람들이 왜 흔히 그 대의의 가장 헌신적인 지지자가 되는지 설명하는 데 도움이 된다.

Having paid a high price, they find it difficult to admit that the cause might not be worth it.
높은 대가를 치른 그들은 그 대의가 그만한 가치가 없을지도 모른다고 인정하기 어렵다.

The theory suggests that our beliefs are shaped not only by evidence but also by the need to see our own actions as sensible.
이 이론은 우리의 믿음이 증거에 의해서만이 아니라 자신의 행동을 분별 있는 것으로 보려는 욕구에 의해서도 형성된다는 것을 시사한다.

해석 · The Treadmill of Happiness

A promotion, a new car, or a larger house usually produces a burst of happiness.
승진, 새 차, 더 큰 집은 보통 행복의 분출을 낳는다.

Within months, however, the feeling tends to fade as people grow accustomed to their new circumstances.
그러나 몇 달 안에 사람들이 새 환경에 익숙해지면서 그 느낌은 사라지는 경향이 있다.

Psychologists call this hedonic adaptation, and some have compared it to a treadmill: we keep running toward greater satisfaction but remain in roughly the same place.
심리학자들은 이것을 쾌락 적응이라 부르며, 일부는 그것을 러닝머신에 비유했다. 우리는 더 큰 만족을 향해 계속 달리지만 대략 같은 자리에 머문다.

Adaptation also works in the other direction, helping people recover from many misfortunes more fully than they expect.
적응은 반대 방향으로도 작동하여, 사람들이 많은 불행으로부터 예상보다 더 완전히 회복하도록 돕는다.

Adaptation is not complete for every kind of change, however.
그러나 적응이 모든 종류의 변화에 대해 완전한 것은 아니다.

Long-term studies show that people often do not fully return to their earlier level of well-being after unemployment or the loss of a spouse.
장기 연구들은 사람들이 실직이나 배우자를 잃은 뒤에는 흔히 이전의 행복 수준으로 완전히 돌아가지 못한다는 것을 보여 준다.

Some changes also resist adaptation because they keep providing variety, such as time spent with friends or new experiences, rather than a fixed state, such as a bigger house.
어떤 변화들은 더 큰 집 같은 고정된 상태가 아니라 친구와 보내는 시간이나 새로운 경험처럼 계속 다양성을 제공하기 때문에 적응에 저항한다.

This suggests a practical strategy.
이는 실용적인 전략을 시사한다.

Spending on experiences and relationships may yield longer-lasting satisfaction than spending on possessions, which quickly become part of the unnoticed background of life.
경험과 관계에 쓰는 것이 금세 삶의 눈에 띄지 않는 배경의 일부가 되는 소유물에 쓰는 것보다 더 오래 지속되는 만족을 줄 수 있다.

해석 · Getting Smarter, or Thinking Differently?

Throughout the twentieth century, average scores on intelligence tests rose by about three points per decade in many countries.
20세기 내내 많은 나라에서 지능 검사의 평균 점수가 10년마다 약 3점씩 올랐다.

This is known as the Flynn effect, after the researcher James Flynn who documented it.
이것은 그것을 기록한 연구자 제임스 플린의 이름을 따서 플린 효과로 알려져 있다.

The gains are too rapid to be explained by genetic change.
그 상승은 유전적 변화로 설명하기에는 너무 빠르다.

Proposed causes include better nutrition, more years of schooling, smaller families, and an environment filled with complex information.
제시된 원인으로는 더 나은 영양, 더 긴 교육 기간, 더 작은 가족, 복잡한 정보로 가득한 환경 등이 있다.

Flynn himself noticed something revealing about where the gains occurred.
플린 자신은 상승이 어디에서 일어났는지에 관해 의미심장한 점을 발견했다.

Scores rose most on tests of abstract reasoning, such as finding patterns in shapes or classifying concepts, and much less on tests of vocabulary and arithmetic.
점수는 도형에서 패턴을 찾거나 개념을 분류하는 것 같은 추상적 추론 검사에서 가장 많이 올랐고, 어휘와 산수 검사에서는 훨씬 덜 올랐다.

He argued that modern people are not simply smarter than their grandparents but have learned to think in different ways, treating hypothetical and abstract categories as natural.
그는 현대인이 조부모보다 단순히 더 똑똑한 것이 아니라 다른 방식으로 생각하는 법을 배웠으며, 가정적이고 추상적인 범주를 자연스러운 것으로 다루게 되었다고 주장했다.

Asked what a dog and a rabbit have in common, a farmer of a century ago might answer that dogs hunt rabbits, while a modern student answers that both are mammals.
개와 토끼의 공통점을 질문받으면, 한 세기 전의 농부는 개가 토끼를 사냥한다고 답할 수 있지만, 현대 학생은 둘 다 포유류라고 답한다.

Recently, the rise has slowed or even reversed in some developed countries, a change researchers are still trying to explain.
최근 일부 선진국에서는 그 상승이 둔화되거나 심지어 역전되었으며, 연구자들은 아직 그 변화를 설명하려 하고 있다.

해석 · Familiarity Breeds Liking

People tend to develop a preference for things simply because they have encountered them before.
사람들은 단지 이전에 접했다는 이유만으로 사물에 대한 선호를 키우는 경향이 있다.

In experiments by the psychologist Robert Zajonc, participants shown unfamiliar Chinese characters or faces several times later rated them more favorably than ones they had seen only once or not at all.
심리학자 로버트 자이언스의 실험에서 낯선 한자나 얼굴을 여러 번 본 참가자들은 나중에 그것을 한 번만 보았거나 전혀 보지 않은 것보다 더 호의적으로 평가했다.

Remarkably, the effect occurred even when the images were flashed too quickly to be consciously recognized.
놀랍게도 그 효과는 이미지가 의식적으로 인식되기에는 너무 빨리 스쳐 지나갔을 때조차 나타났다.

This mere exposure effect helps explain why songs often grow on us after repeated listening and why advertisers repeat the same messages.
이 단순 노출 효과는 왜 노래가 반복해서 들은 뒤 흔히 좋아지는지, 그리고 왜 광고주들이 같은 메시지를 반복하는지 설명하는 데 도움이 된다.

One explanation is that familiar things are processed more easily, and the brain mistakes this ease for a sign that something is good or safe.
한 가지 설명은 익숙한 것은 더 쉽게 처리되며, 뇌가 이 쉬움을 어떤 것이 좋거나 안전하다는 신호로 착각한다는 것이다.

From an evolutionary perspective, things encountered repeatedly without harm were probably not dangerous.
진화적 관점에서 해를 입지 않고 반복해서 마주친 것들은 아마 위험하지 않았을 것이다.

The effect has limits.
이 효과에는 한계가 있다.

Exposure increases liking most for things that are initially neutral; repeated exposure to something people already dislike can strengthen the dislike, and excessive repetition can lead to boredom.
노출은 처음에 중립적인 것에 대한 호감을 가장 많이 높인다. 사람들이 이미 싫어하는 것에 반복 노출되면 싫음이 강해질 수 있고, 과도한 반복은 지루함으로 이어질 수 있다.

Familiarity, then, is a powerful but not unlimited source of attraction.
그렇다면 익숙함은 강력하지만 무한하지는 않은 매력의 원천이다.

해석 · Defending Choices We Never Made

In a striking experiment, researchers showed participants pairs of photographs of faces and asked them to choose which person they found more attractive.
인상적인 한 실험에서 연구자들은 참가자들에게 얼굴 사진 쌍을 보여 주고 어느 사람이 더 매력적인지 고르게 했다.

Immediately afterward, the experimenter handed them the chosen photo and asked them to explain their choice.
바로 그 뒤 실험자는 선택된 사진을 그들에게 건네며 선택을 설명하라고 했다.

On some trials, however, the experimenter secretly swapped the photos, giving participants the face they had rejected.
그러나 일부 시행에서 실험자는 몰래 사진을 바꿔 참가자에게 그들이 거부한 얼굴을 건넸다.

Most participants did not notice the switch.
대부분의 참가자는 그 바꿔치기를 알아채지 못했다.

More remarkably, they went on to explain why they had chosen a face they had in fact rejected, sometimes citing features, such as earrings, that appeared only in the substituted photo.
더 놀랍게도 그들은 실제로 거부했던 얼굴을 왜 골랐는지 계속 설명했으며, 때로는 바뀐 사진에만 있는 귀걸이 같은 특징을 근거로 들었다.

Researchers call this phenomenon choice blindness.
연구자들은 이 현상을 선택맹이라고 부른다.

Similar results have been found with tastes of jam and even with political opinions on surveys.
비슷한 결과가 잼 맛, 심지어 설문의 정치적 의견에서도 발견되었다.

The findings suggest that the reasons we give for our choices are often constructed after the fact rather than reports of what actually guided the decision.
이 발견은 우리가 선택에 대해 대는 이유가 실제로 결정을 이끈 것에 대한 보고라기보다 흔히 사후에 구성된 것임을 시사한다.

We may know what we chose far less reliably than we believe, and our explanations may be stories we tell to make sense of ourselves.
우리는 무엇을 골랐는지 믿는 것보다 훨씬 덜 확실하게 알고 있을지 모르며, 우리의 설명은 스스로를 이해하기 위해 말하는 이야기일지 모른다.

해석 · The Myth of Multitasking

Many people believe they can handle several tasks at once, answering messages while listening to a lecture or driving while talking on the phone.
많은 사람이 강의를 들으며 메시지에 답하거나 통화하며 운전하는 것처럼 여러 일을 한꺼번에 처리할 수 있다고 믿는다.

Research suggests that, for tasks requiring attention, the brain does not truly perform them simultaneously.
연구는 주의가 필요한 일에 대해서는 뇌가 진정으로 그것들을 동시에 수행하지 않는다는 것을 시사한다.

Instead it switches rapidly between them, and each switch carries a cost in time and accuracy.
대신 뇌는 그것들 사이를 빠르게 전환하며, 각 전환에는 시간과 정확성의 비용이 따른다.

Studies find that people who frequently multitask with media perform worse on tests of filtering out irrelevant information than people who rarely do.
연구들은 미디어로 자주 멀티태스킹을 하는 사람들이 드물게 하는 사람들보다 무관한 정보를 걸러 내는 검사에서 더 못한다는 것을 발견한다.

Heavy multitaskers often rate themselves as skilled at it, yet their performance suggests the opposite.
많이 멀티태스킹하는 사람들은 흔히 스스로를 그것에 능숙하다고 평가하지만, 그들의 수행은 그 반대를 시사한다.

Whether multitasking causes these weaknesses or whether people who are easily distracted are drawn to multitasking remains unclear.
멀티태스킹이 이러한 약점을 일으키는지, 아니면 쉽게 산만해지는 사람들이 멀티태스킹에 끌리는지는 여전히 불분명하다.

Some combinations do work well, particularly when one activity is highly automatic, such as walking while talking.
일부 조합은 잘 작동하는데, 특히 걸으면서 말하기처럼 한 활동이 고도로 자동적일 때 그렇다.

The trouble arises when two tasks compete for the same mental resources, as reading and listening to speech both do.
문제는 읽기와 말 듣기가 모두 그렇듯 두 과제가 같은 정신적 자원을 두고 경쟁할 때 생긴다.

For work that demands careful thought, the evidence favors doing one thing at a time.
신중한 사고를 요구하는 일에 대해서는 증거가 한 번에 한 가지를 하는 쪽을 지지한다.

해석 · The Poverty of the Stimulus

Children acquire the grammar of their native language with remarkable speed and accuracy, usually without any formal instruction.
아이들은 보통 어떤 정식 교육도 없이 놀라운 속도와 정확성으로 모국어의 문법을 습득한다.

The linguist Noam Chomsky argued that the language children hear is too limited and messy to explain what they come to know.
언어학자 노엄 촘스키는 아이들이 듣는 언어가 너무 제한적이고 엉성해서 그들이 알게 되는 것을 설명할 수 없다고 주장했다.

Children rarely hear examples of certain complex structures, and they are almost never corrected for grammatical errors, yet they reliably avoid mistakes that would seem natural if they were simply generalizing from what they had heard.
아이들은 특정 복잡한 구조의 예를 거의 듣지 못하고 문법적 오류를 교정받는 일도 거의 없지만, 들은 것에서 단순히 일반화한다면 자연스러워 보일 실수를 확실하게 피한다.

This "poverty of the stimulus," Chomsky concluded, shows that humans must be born with an innate universal grammar that constrains the forms languages can take.
촘스키는 이 '자극의 빈곤'이 인간이 언어가 취할 수 있는 형태를 제약하는 선천적 보편 문법을 가지고 태어나야 함을 보여 준다고 결론지었다.

The argument has been enormously influential, but it has also been challenged.
이 논증은 엄청난 영향을 미쳤지만 도전도 받아 왔다.

Critics point out that children hear millions of words in their early years and are highly skilled at detecting statistical patterns in what they hear.
비판자들은 아이들이 어린 시절 수백만 개의 단어를 듣고, 들은 것에서 통계적 패턴을 감지하는 데 매우 능숙하다고 지적한다.

Computer models trained on large amounts of language have learned some of the structures once thought to require innate knowledge.
대량의 언어로 훈련된 컴퓨터 모델은 한때 선천적 지식이 필요하다고 여겨졌던 구조 중 일부를 학습했다.

Defenders reply that such models require far more data than any child receives.
옹호자들은 그러한 모델이 어떤 아이가 받는 것보다 훨씬 많은 데이터를 필요로 한다고 응수한다.

The debate thus turns on an empirical question: how much can be learned from the input children actually receive?
따라서 이 논쟁은 경험적 질문으로 귀결된다. 아이들이 실제로 받는 입력으로부터 얼마나 많이 배울 수 있는가?

해석 · Is There a Critical Period for Language?

Young children who move to a new country typically come to speak its language with a native accent, while adults who arrive at the same time often retain a foreign accent for life.
새 나라로 이주한 어린아이들은 보통 그 나라 말을 원어민 억양으로 하게 되는 반면, 같은 때 도착한 어른들은 흔히 평생 외국인 억양을 유지한다.

This observation supports the idea of a critical period, a window in early life during which language is acquired most easily.
이 관찰은 결정적 시기, 즉 언어가 가장 쉽게 습득되는 어린 시절의 한 창이 있다는 생각을 뒷받침한다.

A large study of nearly seven hundred thousand English learners estimated that the ability to master grammar remains strong until about age seventeen and declines afterward.
거의 70만 명의 영어 학습자를 대상으로 한 대규모 연구는 문법을 완전히 익히는 능력이 약 17세까지 강하게 유지되다가 이후 감소한다고 추정했다.

Interpreting such findings is not simple.
그러한 발견을 해석하는 것은 간단하지 않다.

Children and adults learn in very different circumstances.
아이들과 어른들은 매우 다른 환경에서 배운다.

Children are immersed in the language at school and with friends, while adults often continue to use their first language at home and work.
아이들은 학교와 친구들 사이에서 언어에 몰입하는 반면, 어른들은 흔히 집과 직장에서 계속 모국어를 사용한다.

Adults also tend to be judged against native speakers, while children are compared with other children.
어른들은 또한 원어민과 비교해 평가받는 경향이 있지만 아이들은 다른 아이들과 비교된다.

Interestingly, adults often learn faster than children at first, especially in grammar and vocabulary, and it is only over the long term that children pull ahead.
흥미롭게도 어른들은 처음에는 특히 문법과 어휘에서 아이들보다 더 빨리 배우는 경우가 많고, 아이들이 앞서 나가는 것은 오직 장기적으로만 그렇다.

Age clearly matters, but how much of its effect is biological and how much reflects differences in exposure remains an open question.

나이는 분명히 중요하지만, 그 효과 중 얼마만큼이 생물학적이고 얼마만큼이 노출의 차이를 반영하는지는 여전히 열린 질문이다.

해석 · Languages Born from Contact

When people who share no common language must communicate regularly, for example on plantations or in trading ports, they often develop a pidgin.
공통 언어가 없는 사람들이 예컨대 농장이나 무역항에서 정기적으로 소통해야 할 때, 그들은 흔히 피진을 발전시킨다.

A pidgin is a simplified language with a limited vocabulary, usually drawn largely from one dominant language, and little grammatical structure.
피진은 어휘가 제한되어 있고 보통 대부분 하나의 지배적 언어에서 가져오며 문법 구조가 거의 없는 단순화된 언어다.

It is nobody's first language and serves basic practical needs.
그것은 누구의 모국어도 아니며 기본적인 실용적 필요를 충족한다.

Something remarkable can happen when children grow up hearing a pidgin.
아이들이 피진을 들으며 자랄 때 놀라운 일이 일어날 수 있다.

Within a generation or two, the pidgin can develop into a creole, a full language with consistent grammar, including markers of tense, complex sentences, and the ability to express anything its speakers need.
한두 세대 안에 피진은 크리올, 즉 시제 표지와 복문을 포함한 일관된 문법을 갖추고 화자들이 필요로 하는 무엇이든 표현할 수 있는 완전한 언어로 발전할 수 있다.

Some linguists have argued that creoles around the world share grammatical features even when they arose from very different source languages.
일부 언어학자들은 전 세계의 크리올이 매우 다른 원천 언어에서 생겨났을 때조차 문법적 특징을 공유한다고 주장해 왔다.

If so, children may bring certain grammatical tendencies of their own to the task of learning language.
그렇다면 아이들은 언어를 배우는 과제에 자기 나름의 특정한 문법적 경향을 가지고 오는 것일 수 있다.

Others argue that the similarities reflect shared source languages or common social conditions.
다른 이들은 그 유사성이 공유된 원천 언어나 공통의 사회적 조건을 반영한다고 주장한다.

Either way, creoles demonstrate that new languages are not merely broken versions of old ones but full systems created by their speakers.
어느 쪽이든 크리올은 새로운 언어가 옛 언어의 망가진 버전이 아니라 그 화자들이 만들어 낸 완전한 체계임을 보여 준다.

해석 · When a Language Dies

Of the roughly seven thousand languages spoken today, linguists estimate that up to half may disappear by the end of this century.
오늘날 사용되는 약 7천 개의 언어 중 언어학자들은 최대 절반이 이번 세기 말까지 사라질 수 있다고 추정한다.

Languages usually die not through the death of their speakers but through a gradual shift, as parents stop passing them on to children in favor of a more widely used language that promises economic opportunity.
언어는 보통 화자들의 죽음이 아니라 점진적인 전환을 통해 죽는데, 부모들이 경제적 기회를 약속하는 더 널리 쓰이는 언어를 위해 자녀에게 그것을 물려주기를 멈추기 때문이다.

Once a language is no longer learned by children, its survival is in serious danger.
일단 언어가 더 이상 아이들에게 학습되지 않으면 그 생존은 심각한 위험에 처한다.

Why should the loss matter?
그 상실이 왜 중요해야 하는가?

Each language encodes knowledge accumulated over generations, including names for local plants and animals, ways of describing relationships, and oral histories that exist nowhere else.
각 언어는 여러 세대에 걸쳐 축적된 지식을 담고 있는데, 지역 식물과 동물의 이름, 관계를 묘사하는 방식, 다른 어디에도 존재하지 않는 구전 역사가 포함된다.

For linguists, each language is also evidence about the range of possible human grammars.
언어학자들에게 각 언어는 또한 가능한 인간 문법의 범위에 관한 증거다.

For speakers, a language is often tied to identity and community.
화자들에게 언어는 흔히 정체성과 공동체에 묶여 있다.

Revival is difficult but not impossible.
부활은 어렵지만 불가능하지 않다.

Hebrew was revived as an everyday spoken language in the late nineteenth and twentieth centuries, and programs in which children are taught entirely in an endangered language have helped revitalize others, such as Māori in New Zealand.
히브리어는 19세기 말과 20세기에 일상 구어로 부활했고, 아이들이 위기에 처한 언어로만 교육받는 프로그램은 뉴질랜드의 마오리어 같은 다른 언어들을 되살리는 데 도움이 되었다.

해석 · Rules and Realities of Usage

Many people were taught that sentences should never end with a preposition and that infinitives should never be split, as in "to boldly go."
많은 사람이 문장은 결코 전치사로 끝나서는 안 되며, 'to boldly go'에서처럼 부정사를 분리해서는 안 된다고 배웠다.

Linguists point out that these rules were invented by eighteenth- and nineteenth-century grammarians, partly by imitating Latin, in which such constructions are impossible.
언어학자들은 이 규칙들이 18~19세기 문법학자들이 부분적으로 그러한 구문이 불가능한 라틴어를 모방하여 만들어 낸 것이라고 지적한다.

Skilled English writers had been ending sentences with prepositions for centuries.
숙련된 영어 작가들은 수 세기 동안 전치사로 문장을 끝내 왔다.

This contrast reflects two approaches to language.
이 대조는 언어에 대한 두 가지 접근을 반영한다.

Prescriptivism tells people how they ought to speak and write, while descriptivism describes how people actually do.
규범주의는 사람들에게 어떻게 말하고 써야 하는지 말해 주고, 기술주의는 사람들이 실제로 어떻게 하는지 기술한다.

Linguists, as scientists, are mainly descriptivists, treating all varieties of a language as systematic and rule-governed.
과학자로서 언어학자들은 주로 기술주의자이며, 한 언어의 모든 변종을 체계적이고 규칙에 따르는 것으로 다룬다.

Yet this does not mean that anything goes in every situation.
그러나 이것이 모든 상황에서 무엇이든 괜찮다는 뜻은 아니다.

Standard written forms allow people from different regions to communicate clearly in formal contexts, and knowing them can matter for education and employment.
표준 문어 형태는 서로 다른 지역 사람들이 공식적인 맥락에서 명확하게 소통하게 해 주며, 그것을 아는 것은 교육과 취업에 중요할 수 있다.

The useful distinction is between conventions that aid clarity and arbitrary rules whose main function is to mark some speakers as superior to others.
유용한 구분은 명확성을 돕는 관습과 주된 기능이 일부 화자를 다른 화자보다 우월하다고 표시하는 것인 자의적 규칙 사이에 있다.

해석 · Testing as Learning

Most students think of tests as a way to measure learning, not as a way to produce it.
대부분의 학생은 시험을 학습을 측정하는 방법으로 생각하지, 학습을 만들어 내는 방법으로 생각하지 않는다.

Research suggests otherwise.
연구는 다르게 시사한다.

In a typical experiment, students read a passage and then either reread it several times or took practice tests in which they tried to recall its content.
전형적인 실험에서 학생들은 글을 읽은 뒤 그것을 여러 번 다시 읽거나, 그 내용을 회상하려고 애쓰는 연습 시험을 쳤다.

On a test a few minutes later, the rereading group did slightly better.
몇 분 뒤의 시험에서는 다시 읽은 집단이 약간 더 잘했다.

On a test a week later, however, the practice-test group remembered far more.
그러나 일주일 뒤의 시험에서는 연습 시험 집단이 훨씬 더 많이 기억했다.

This testing effect, also called retrieval practice, appears to work because the effort of pulling information out of memory strengthens it more than passively taking it in again.
인출 연습이라고도 불리는 이 시험 효과는 기억에서 정보를 끌어내는 노력이 그것을 수동적으로 다시 받아들이는 것보다 더 강화하기 때문에 작동하는 것으로 보인다.

The finding has an uncomfortable implication: the strategies that feel most effective are often not.
이 발견에는 불편한 함의가 있다. 가장 효과적이라고 느껴지는 전략이 흔히 그렇지 않다는 것이다.

Rereading creates a sense of familiarity that students mistake for mastery, while struggling to recall information feels difficult and therefore unproductive.
다시 읽기는 학생들이 숙달로 착각하는 친숙함을 만들어 내는 반면, 정보를 회상하려고 애쓰는 것은 어렵게 느껴져서 비생산적인 것처럼 느껴진다.

Students who want lasting knowledge would do well to close the book and test themselves, especially when it feels hard.
오래가는 지식을 원하는 학생들은 책을 덮고 스스로를 시험해 보는 것이 좋을 것이며, 특히 그것이 어렵게 느껴질 때 그렇다.

해석 · Spreading Out Practice

Imagine two students preparing for an exam with the same total study time.
같은 총 공부 시간으로 시험을 준비하는 두 학생을 상상해 보라.

One studies for six hours the night before; the other studies for one hour on each of six days.
한 명은 전날 밤 여섯 시간 공부하고, 다른 한 명은 6일 동안 하루 한 시간씩 공부한다.

Over a century of research shows that the second student will typically remember much more, especially weeks or months later.
한 세기가 넘는 연구는 두 번째 학생이 보통 훨씬 더 많이 기억할 것이며, 특히 몇 주 또는 몇 달 뒤에 그렇다는 것을 보여 준다.

This is the spacing effect.
이것이 간격 효과다.

One explanation is that when we return to material after some forgetting has occurred, the effort of reconstructing it strengthens the memory.
한 가지 설명은 어느 정도 망각이 일어난 뒤에 자료로 돌아오면 그것을 재구성하는 노력이 기억을 강화한다는 것이다.

Cramming, by contrast, keeps information active only briefly, so it feels effective during the session but fades quickly.
반대로 벼락치기는 정보를 잠깐만 활성 상태로 유지하므로, 공부하는 동안은 효과적으로 느껴지지만 빨리 사라진다.

The ideal gap between sessions depends on how long one needs to remember the material: the longer the retention needed, the longer the gaps should generally be.
공부 사이의 이상적인 간격은 자료를 얼마나 오래 기억해야 하는지에 달려 있다. 필요한 기억 유지 기간이 길수록 간격은 일반적으로 길어야 한다.

Despite the strength of the evidence, schools rarely organize learning around spacing.
증거가 강력함에도 학교들은 간격을 중심으로 학습을 조직하는 경우가 드물다.

Textbook chapters typically present a topic, practice it intensively, and move on, rarely returning to earlier material until the final exam.
교과서 단원들은 보통 한 주제를 제시하고, 집중적으로 연습하고, 넘어가며, 기말시험 전까지 이전 내용으로 거의 돌아오지 않는다.

해석 · Difficulties That Help

The psychologist Robert Bjork coined the term "desirable difficulties" for learning conditions that slow down initial progress but improve long-term retention.

심리학자 로버트 비요크는 초기 진전을 늦추지만 장기 기억을 향상하는 학습 조건에 대해 '바람직한 어려움'이라는 용어를 만들었다.

Spacing and self-testing are two examples; another is interleaving, mixing different kinds of problems within a practice session rather than practicing one type at a time.
간격 두기와 자기 시험이 두 가지 예이고, 또 다른 예는 인터리빙, 즉 한 번에 한 유형씩 연습하는 대신 한 연습 시간 안에 서로 다른 종류의 문제를 섞는 것이다.

A student practicing math might solve twenty problems on finding the volume of one shape, then twenty on another.
수학을 연습하는 학생은 한 도형의 부피를 구하는 문제 20개를 풀고, 그다음 다른 도형 문제 20개를 풀 수 있다.

Alternatively, she might solve the problems in a mixed order.
또는 그 문제들을 섞인 순서로 풀 수도 있다.

The mixed order feels harder and produces more errors during practice.
섞인 순서는 더 어렵게 느껴지고 연습 중에 더 많은 오류를 낳는다.

On a later test, however, students who practiced in mixed order typically perform much better.
그러나 이후 시험에서는 섞인 순서로 연습한 학생들이 보통 훨씬 더 잘한다.

The reason is that blocked practice tells students which method to use before each problem, so they never learn to recognize which method a problem requires.
그 이유는 묶음 연습이 각 문제 전에 학생에게 어떤 방법을 써야 할지 알려 주므로, 그들이 문제가 어떤 방법을 요구하는지 알아보는 법을 결코 배우지 못하기 때문이다.

On a real exam, of course, problems do not arrive labeled.
물론 실제 시험에서 문제들은 꼬리표를 달고 오지 않는다.

Not all difficulties are desirable, however: a difficulty helps only if the learner can eventually overcome it, and material that is simply too hard produces confusion rather than learning.
그러나 모든 어려움이 바람직한 것은 아니다. 어려움은 학습자가 결국 그것을 극복할 수 있을 때만 도움이 되며, 그저 너무 어려운 자료는 학습이 아니라 혼란을 낳는다.

해석 · The Learning Styles Myth

A popular belief holds that each person has a preferred learning style, such as visual, auditory, or kinesthetic, and learns best when teaching matches that style.
널리 퍼진 믿음은 각 사람에게 시각, 청각, 운동 감각 같은 선호하는 학습 양식이 있으며, 교육이 그 양식에 맞을 때 가장 잘 배운다는 것이다.

Surveys find that a large majority of teachers accept this idea.
설문 조사들은 교사들 대다수가 이 생각을 받아들인다는 것을 발견한다.

Testing it properly requires a specific design.
그것을 제대로 검증하려면 특정한 설계가 필요하다.

Students must be classified by style and then randomly taught either in a matching or a mismatching way.
학생들을 양식별로 분류한 뒤 무작위로 맞는 방식이나 맞지 않는 방식으로 가르쳐야 한다.

If the theory is correct, visual learners should do better with visual teaching and auditory learners with auditory teaching.
이론이 옳다면 시각형 학습자는 시각적 교육에서, 청각형 학습자는 청각적 교육에서 더 잘해야 한다.

Reviews of studies using this design have found little or no such pattern.
이 설계를 사용한 연구들에 대한 검토는 그런 패턴을 거의 또는 전혀 발견하지 못했다.

People do have preferences, and they may believe they learn better one way, but matching instruction to those preferences does not improve outcomes.
사람들은 실제로 선호를 가지고 있고 한 방식으로 더 잘 배운다고 믿을 수 있지만, 교육을 그 선호에 맞추는 것이 결과를 개선하지는 않는다.

What matters more is matching the method to the content: maps are best learned visually and pronunciation through listening, for everyone.
더 중요한 것은 방법을 내용에 맞추는 것이다. 지도는 시각적으로, 발음은 듣기를 통해 배우는 것이 모든 사람에게 가장 좋다.

The persistence of the myth shows how an intuitive and flattering idea can survive despite evidence against it.
이 신화가 지속되는 것은 직관적이고 기분 좋은 생각이 반대 증거에도 불구하고 어떻게 살아남을 수 있는지 보여 준다.

해석 · Learning to Read

Unlike speech, which children acquire naturally, reading is a recent cultural invention that must be taught.
아이들이 자연스럽게 습득하는 말과 달리, 읽기는 가르쳐야 하는 최근의 문화적 발명품이다.

For decades, educators argued over how.
수십 년 동안 교육자들은 그 방법을 두고 논쟁했다.

Advocates of phonics emphasized teaching the relationships between letters and sounds so that children could decode unfamiliar words.
파닉스 옹호자들은 아이들이 낯선 단어를 해독할 수 있도록 글자와 소리 사이의 관계를 가르치는 것을 강조했다.

Advocates of "whole language" argued that children learn to read best by being immersed in meaningful texts, guessing words from context and pictures, much as they learned to speak.
'총체적 언어' 옹호자들은 아이들이 말을 배웠던 것처럼 의미 있는 텍스트에 몰입하여 맥락과 그림으로 단어를 추측하면서 가장 잘 읽기를 배운다고 주장했다.

The scientific evidence has come down clearly on one side.
과학적 증거는 분명히 한쪽 편을 들었다.

Studies of reading development and brain imaging show that skilled readers do process the letters of words, and that systematic phonics instruction improves reading outcomes, especially for children at risk of difficulty.
읽기 발달과 뇌 영상 연구들은 숙련된 독자가 실제로 단어의 글자를 처리하며, 체계적인 파닉스 교육이 특히 어려움을 겪을 위험이 있는 아이들의 읽기 성과를 향상시킨다는 것을 보여 준다.

Guessing from pictures can leave weaker readers without a strategy when texts become harder and pictures disappear.
그림으로 추측하는 것은 텍스트가 어려워지고 그림이 사라질 때 약한 독자들을 전략 없이 남겨 둘 수 있다.

This does not mean that meaning and rich literature are unimportant; decoding is necessary but not sufficient for comprehension.
이것이 의미와 풍부한 문학이 중요하지 않다는 뜻은 아니다. 해독은 이해에 필요하지만 충분하지는 않다.

Effective programs combine explicit phonics with vocabulary, background knowledge, and plenty of engaging reading.
효과적인 프로그램은 명시적인 파닉스를 어휘, 배경지식, 그리고 충분한 흥미로운 읽기와 결합한다.

해석 · The Right to Be Forgotten

In 2014 the highest court of the European Union ruled that people can ask search engines to remove links to information about them that is inadequate, irrelevant, or no longer relevant.
2014년 유럽 연합의 최고 법원은 사람들이 자신에 관한 부적절하거나, 무관하거나, 더 이상 관련 없는 정보로 가는 링크를 삭제하도록 검색 엔진에 요청할 수 있다고 판결했다.

The case began with a Spanish man who objected that searching his name still displayed a newspaper notice about the forced sale of his home years earlier, a debt he had long since paid.
이 사건은 자기 이름을 검색하면 그가 오래전에 갚은 빚 때문에 수년 전 집이 강제 매각되었다는 신문 공고가 여전히 나온다고 이의를 제기한 한 스페인 남성에게서 시작되었다.

Supporters argue that the internet's perfect memory makes it impossible for people to move beyond past mistakes, unlike the gradual forgetting that once allowed reputations to recover.
지지자들은 인터넷의 완벽한 기억이, 한때 평판이 회복되도록 해 주었던 점진적인 망각과 달리, 사람들이 과거의 실수를 넘어서는 것을 불가능하게 만든다고 주장한다.

Critics worry that the right can be used to hide information the public has a legitimate interest in knowing, such as the past conduct of politicians or businesspeople.

비판자들은 그 권리가 정치인이나 기업인의 과거 행적처럼 대중이 알 정당한 이익이 있는 정보를 숨기는 데 이용될 수 있다고 우려한다.

They also object that private companies are left to make difficult judgments balancing privacy against freedom of expression.
그들은 또한 사생활과 표현의 자유를 저울질하는 어려운 판단이 민간 기업에 맡겨진다는 점에 반대한다.

Notably, the ruling did not require the newspaper to delete its original article.
주목할 점은, 그 판결이 신문에 원래 기사를 삭제하라고 요구하지 않았다는 것이다.

It required only that the link be removed from search results for the man's name.
그것은 그 남성의 이름에 대한 검색 결과에서 링크를 삭제하라고만 요구했다.

The information remained available to anyone who looked for it in the archive, but it was no longer the first thing the world learned about him.
그 정보는 기록 보관소에서 찾는 누구에게나 여전히 접근 가능했지만, 더 이상 세상이 그에 대해 처음 알게 되는 것은 아니었다.

The case thus distinguishes between the existence of information and its prominence.
따라서 이 사건은 정보의 존재와 그 두드러짐을 구별한다.

해석 · Do Algorithms Trap Us?

Online platforms recommend content based on what users have previously clicked, watched, or liked.
온라인 플랫폼은 사용자가 이전에 클릭하고, 보고, 좋아한 것을 바탕으로 콘텐츠를 추천한다.

The activist Eli Pariser warned that this personalization creates "filter bubbles," in which people see only information that confirms their existing views.
활동가 엘리 패리저는 이러한 개인화가 사람들이 기존 견해를 확인해 주는 정보만 보게 되는 '필터 버블'을 만든다고 경고했다.

The idea is intuitive and has been widely blamed for political polarization.
그 생각은 직관적이며 정치적 양극화의 원인으로 널리 비난받아 왔다.

Empirical research, however, paints a more complicated picture.
그러나 실증 연구는 더 복잡한 그림을 그린다.

Several studies find that most people's online news diets are less narrow than feared, and that many people encounter opposing views on social media more often than in their offline lives.
여러 연구는 대부분의 사람들의 온라인 뉴스 소비가 우려한 것보다 덜 편협하며, 많은 사람이 오프라인 생활에서보다 소셜 미디어에서 반대 견해를 더 자주 접한다는 것을 발견한다.

Moreover, polarization in some countries began rising before social media became widespread, and has risen fastest among older people who use the internet least.
게다가 일부 나라에서 양극화는 소셜 미디어가 널리 퍼지기 전에 상승하기 시작했고, 인터넷을 가장 적게 쓰는 노년층에서 가장 빠르게 상승했다.

This does not mean algorithms are harmless.
이것이 알고리즘이 무해하다는 뜻은 아니다.

A small group of heavy users may indeed be drawn into extreme content, and exposure to opposing views can sometimes harden attitudes rather than soften them.
소수의 과다 사용자 집단은 실제로 극단적인 콘텐츠로 끌려들 수 있으며, 반대 견해에 노출되는 것이 때로는 태도를 누그러뜨리기보다 굳힐 수 있다.

The evidence suggests that the problem may lie less in what people are shown than in how they respond to it.
증거는 문제가 사람들에게 무엇이 보이느냐보다 그들이 그것에 어떻게 반응하느냐에 있을 수 있음을 시사한다.

해석 · Will Machines Take All the Jobs?

Fears that technology will cause mass unemployment are as old as industrialization.
기술이 대량 실업을 일으킬 것이라는 두려움은 산업화만큼 오래되었다.

In the early nineteenth century, English textile workers smashed machines they believed would destroy their livelihoods.
19세기 초 영국의 직물 노동자들은 자신들의 생계를 파괴할 것이라고 믿은 기계들을 부쉈다.

Yet two centuries of rapid technological change have not produced permanent mass unemployment.
그러나 두 세기에 걸친 급격한 기술 변화는 영구적인 대량 실업을 낳지 않았다.

Economists often point to the "lump of labor fallacy," the mistaken assumption that there is a fixed amount of work to be done.
경제학자들은 흔히 해야 할 일의 양이 고정되어 있다는 잘못된 가정인 '노동 총량의 오류'를 지적한다.

When machines make production cheaper, prices fall, people buy more, and new industries emerge, creating jobs that did not previously exist.
기계가 생산을 더 싸게 만들면 가격이 떨어지고, 사람들이 더 많이 사고, 새로운 산업이 생겨나 이전에 존재하지 않던 일자리를 만들어 낸다.

Few people in 1900 could have imagined the occupations of software developer or physical therapist.
1900년에 소프트웨어 개발자나 물리 치료사라는 직업을 상상할 수 있었던 사람은 거의 없었다.

The historical record, however, offers less comfort to individual workers.
그러나 역사적 기록은 개별 노동자에게 덜 위안이 된다.

The new jobs often require different skills and appear in different places, so displaced workers may face long periods of lower wages, and some never recover.
새 일자리는 흔히 다른 기술을 요구하고 다른 장소에서 나타나므로, 밀려난 노동자들은 오랜 기간 더 낮은 임금을 겪을 수 있고, 일부는 결코 회복하지 못한다.

Whether artificial intelligence will follow the historical pattern is debated, since it may replace cognitive tasks that were previously the refuge of displaced workers.
인공 지능이 역사적 패턴을 따를지는 논쟁 중인데, 그것이 이전에는 밀려난 노동자들의 피난처였던 인지적 업무를 대체할 수 있기 때문이다.

해석 · Giving It Away

Much of the software that runs the internet, from web servers to operating systems, is open source: its code is freely available for anyone to use, study, and modify.
웹 서버부터 운영 체제까지 인터넷을 돌리는 소프트웨어의 상당 부분은 오픈 소스다. 그 코드는 누구나 사용하고, 연구하고, 수정할 수 있도록 자유롭게 공개되어 있다.

Much of it was built by volunteers who were not paid for their contributions.
그 상당 부분은 기여에 대해 보수를 받지 않은 자원봉사자들이 만들었다.

To economists who expected people to work only for material rewards, this was puzzling.
사람들이 물질적 보상을 위해서만 일한다고 예상한 경제학자들에게 이것은 의아한 일이었다.

Researchers have identified several motivations.
연구자들은 여러 동기를 찾아냈다.

Some contributors solve problems they themselves face and share the solution at little cost; others enjoy the challenge or value belonging to a community.
어떤 기여자들은 자신이 직면한 문제를 해결하고 적은 비용으로 해결책을 공유하며, 다른 이들은 도전을 즐기거나 공동체에 속하는 것을 소중히 여긴다.

Many gain reputations that lead to job offers, since their code is visible to potential employers.
많은 이들은 자기 코드가 잠재적 고용주에게 보이기 때문에 일자리 제안으로 이어지는 평판을 얻는다.

Increasingly, companies also pay employees to contribute, because they rely on the shared software themselves.
점점 더 많은 기업들도 공유 소프트웨어에 스스로 의존하기 때문에 직원들에게 기여하는 대가로 돈을 지불한다.

The model has a vulnerability, however.
그러나 이 모델에는 취약점이 있다.

Some critical pieces of software are maintained by one or two unpaid volunteers, and when they burn out or overlook a security flaw, systems used by millions of people can be exposed.
일부 중요한 소프트웨어는 한두 명의 무급 자원봉사자가 유지하며, 그들이 지치거나 보안 결함을 간과하면 수백만 명이 쓰는 시스템이 노출될 수 있다.

해석 · How Long Should Copyright Last?

Copyright gives creators exclusive rights over their works for a limited time, after which the works enter the public domain and anyone may use them.
저작권은 창작자에게 제한된 기간 동안 자기 작품에 대한 독점적 권리를 주며, 그 후 작품은 공공 영역에 들어가 누구나 사용할 수 있다.

The justification is a trade-off.
그 정당화는 맞바꿈이다.

Temporary monopoly rewards creators and encourages them to produce new works, while eventual expiration allows society to build on them.
일시적인 독점은 창작자에게 보상하고 새 작품을 만들도록 장려하며, 결국의 만료는 사회가 그것을 토대로 무언가를 쌓을 수 있게 한다.

In the first American copyright law of 1790, the term was fourteen years, renewable once.
1790년 최초의 미국 저작권법에서 그 기간은 14년이었고 한 번 갱신할 수 있었다.

Today, in many countries, it lasts for the author's life plus seventy years.
오늘날 많은 나라에서 그것은 저자의 생애에 70년을 더한 기간 동안 지속된다.

Economists have questioned whether such long terms serve their purpose.
경제학자들은 그렇게 긴 기간이 그 목적에 부합하는지 의문을 제기해 왔다.

Because money received far in the future is worth much less today, extending protection from fifty to seventy years after an author's death adds almost nothing to the incentive to create.
먼 미래에 받는 돈은 오늘날 훨씬 가치가 적기 때문에, 보호 기간을 저자 사후 50년에서 70년으로 연장하는 것은 창작의 유인에 거의 아무것도 더하지 않는다.

It does, however, keep older works out of the public domain, where they could be reprinted, adapted, or digitized more cheaply.
그러나 그것은 더 오래된 작품들을 공공 영역 밖에 묶어 두는데, 공공 영역에서라면 그것들은 더 싸게 재출간되고, 각색되고, 디지털화될 수 있었을 것이다.

Many works from the twentieth century are now "orphaned": still under copyright, but with owners impossible to find, so no one can legally use them.
20세기의 많은 작품이 이제 '고아'가 되었다. 여전히 저작권 아래 있지만 소유자를 찾을 수 없어 아무도 합법적으로 사용할 수 없다.

해석 · Do Patents Promote Innovation?

Patents give inventors a temporary monopoly, usually twenty years, in exchange for publicly disclosing how their inventions work.
특허는 발명이 어떻게 작동하는지 공개하는 대가로 발명가에게 보통 20년의 일시적 독점권을 준다.

The standard argument is that without such protection, competitors could copy inventions cheaply, and no one would invest in costly research.
표준적인 논증은 그러한 보호가 없으면 경쟁자들이 발명을 싸게 베낄 수 있고, 아무도 비싼 연구에 투자하지 않을 것이라는 것이다.

The argument is strongest for pharmaceuticals, where developing a new drug can cost over a billion dollars but copying it is relatively easy.
그 논증은 의약품에서 가장 강력한데, 새 약을 개발하는 데 10억 달러 이상이 들 수 있지만 그것을 베끼는 것은 비교적 쉽기 때문이다.

In other fields, the evidence is more mixed.
다른 분야에서는 증거가 더 엇갈린다.

Surveys of firms in many industries find that they rely more on being first to market, keeping secrets, and building on their own expertise than on patents.
많은 산업의 기업들을 조사한 결과, 그들은 특허보다 시장에 먼저 나가는 것, 비밀을 지키는 것, 자기 전문성을 쌓는 것에 더 의존한다.

In software, thousands of overlapping patents can make it difficult to develop new products without risking lawsuits.
소프트웨어에서는 수천 개의 겹치는 특허가 소송 위험 없이 새 제품을 개발하는 것을 어렵게 만들 수 있다.

Some companies, called patent trolls, produce nothing but acquire patents in order to sue others.
특허 괴물이라 불리는 일부 기업은 아무것도 생산하지 않고 다른 이들을 고소하기 위해 특허를 취득한다.

Historical studies also suggest that countries without patent systems in the nineteenth century were not noticeably less innovative, though their inventions tended to concentrate in fields where secrecy was easy.
역사 연구들은 또한 19세기에 특허 제도가 없던 나라들이 눈에 띄게 덜 혁신적이지 않았지만, 그들의 발명이 비밀 유지가 쉬운 분야에 집중되는 경향이 있었다는 것을 시사한다.

Patents may shape the direction of innovation as much as its amount.
특허는 혁신의 양만큼이나 그 방향을 형성할 수 있다.

해석 · Saying One Thing, Doing Another

In surveys, most people say they care deeply about privacy and are worried about how companies collect their personal data.
설문 조사에서 대부분의 사람은 사생활을 매우 중요하게 여기며 기업이 자신의 개인 정보를 어떻게 수집하는지 걱정한다고 말한다.

Yet the same people routinely accept lengthy terms of service without reading them, share personal details on social media, and trade information for small discounts.
그러나 같은 사람들이 긴 서비스 약관을 읽지 않고 일상적으로 동의하고, 소셜 미디어에 개인적인 세부 정보를 공유하며, 작은 할인을 위해 정보를 내준다.

This gap is known as the privacy paradox.
이 격차는 프라이버시 역설로 알려져 있다.

One interpretation is that people do not really value privacy as much as they claim.
한 가지 해석은 사람들이 실제로는 주장하는 만큼 사생활을 중요하게 여기지 않는다는 것이다.

Others argue that the behavior reflects the conditions under which choices are made rather than people's true preferences.
다른 이들은 그 행동이 사람들의 진짜 선호가 아니라 선택이 이루어지는 조건을 반영한다고 주장한다.

Privacy policies are long and deliberately vague, the consequences of sharing data are invisible and delayed, and refusing often means giving up services that have become essential for work and social life.
개인 정보 처리 방침은 길고 의도적으로 모호하며, 데이터 공유의 결과는 보이지 않고 늦게 나타나며, 거부하는 것은 흔히 일과 사회생활에 필수가 된 서비스를 포기하는 것을 의미한다.

Under these circumstances, giving up and clicking "agree" may be a reasonable response rather than evidence of indifference.
이러한 상황에서 포기하고 '동의'를 누르는 것은 무관심의 증거라기보다 합리적인 반응일 수 있다.

Some researchers describe this as "privacy resignation."
일부 연구자들은 이것을 '프라이버시 체념'이라고 묘사한다.

If they are right, protecting privacy may depend less on educating individuals than on changing the rules that structure their choices.
그들이 옳다면, 사생활 보호는 개인을 교육하는 것보다 그들의 선택을 구조화하는 규칙을 바꾸는 데 더 달려 있을지 모른다.

해석 · The Liar's Dividend

Artificial intelligence can now produce convincing fake videos and audio recordings, known as deepfakes, that show real people saying or doing things they never did.
인공 지능은 이제 실제 사람들이 결코 하지 않은 말이나 행동을 하는 것처럼 보여 주는, 딥페이크라 알려진 설득력 있는 가짜 영상과 음성 녹음을 만들 수 있다.

The most obvious danger is that people will believe false evidence.
가장 명백한 위험은 사람들이 거짓 증거를 믿는 것이다.

Legal scholars have identified a subtler problem, which they call the liar's dividend.
법학자들은 더 미묘한 문제를 찾아냈는데, 그들은 그것을 거짓말쟁이의 배당이라 부른다.

As the public becomes aware that recordings can be faked, people caught on genuine recordings can more easily claim that the evidence against them is fabricated.
대중이 녹음이 조작될 수 있다는 것을 알게 되면서, 진짜 녹음에 잡힌 사람들은 자신에 대한 증거가 조작되었다고 더 쉽게 주장할 수 있다.

A politician recorded making an offensive remark might simply dismiss it as a deepfake, and some of the public will believe him.
모욕적인 발언을 하는 것이 녹음된 정치인은 그것을 그냥 딥페이크라고 일축할 수 있고, 대중 일부는 그를 믿을 것이다.

In this way, the mere possibility of fakes can undermine trust in real evidence.
이런 식으로 가짜의 단순한 가능성만으로도 진짜 증거에 대한 신뢰가 훼손될 수 있다.

The paradox is that educating people about deepfakes, while necessary, may increase this effect by making doubt easier to justify.
역설은 딥페이크에 대해 사람들을 교육하는 것이 필요하긴 하지만, 의심을 정당화하기 쉽게 만들어 이 효과를 키울 수 있다는 것이다.

Some researchers therefore emphasize technical methods for verifying authentic recordings at the moment they are made, such as digital signatures attached by cameras.
그래서 일부 연구자들은 카메라가 붙이는 디지털 서명처럼 녹음이 만들어지는 순간에 진본을 검증하는 기술적 방법을 강조한다.

Proving what is real may become as important as detecting what is fake.
무엇이 진짜인지 증명하는 것이 무엇이 가짜인지 탐지하는 것만큼 중요해질 수 있다.

해석 · Who Is Responsible When No One Drives?

When a human driver causes an accident, the law has well-established ways of assigning responsibility.
인간 운전자가 사고를 일으키면 법에는 책임을 배정하는 잘 확립된 방법이 있다.

Fully self-driving cars complicate this picture.
완전 자율 주행차는 이 그림을 복잡하게 만든다.

If a vehicle controlled by software strikes a pedestrian, should the blame fall on the passenger, the manufacturer, the programmers, or the company that supplied the training data?
소프트웨어가 제어하는 차량이 보행자를 친다면, 비난은 승객, 제조사, 프로그래머, 학습 데이터를 공급한 회사 중 누구에게 가야 하는가?

Philosophers call this a responsibility gap: harm occurs, but no single human made the decision that caused it.
철학자들은 이것을 책임 공백이라 부른다. 해가 발생했지만 그것을 일으킨 결정을 내린 단 한 명의 인간이 없다.

Machine-learning systems make the gap wider, because their behavior emerges from training rather than from explicit instructions that a programmer could have foreseen.
기계 학습 시스템은 그 공백을 더 넓히는데, 그 행동이 프로그래머가 예견할 수 있었을 명시적 지시가 아니라 학습에서 생겨나기 때문이다.

Some legal scholars propose treating manufacturers like other producers of dangerous products, holding them strictly liable for harm regardless of fault.
일부 법학자들은 제조사를 다른 위험한 제품의 생산자처럼 취급하여 과실과 관계없이 피해에 대해 엄격한 책임을 지우자고 제안한다.

This would give companies a strong incentive to make vehicles safe and ensure that victims are compensated.
이것은 기업에 차량을 안전하게 만들 강한 유인을 주고 피해자가 보상받도록 보장할 것이다.

Critics worry that such liability could discourage the development of a technology that might, on balance, prevent far more accidents than it causes.
비판자들은 그러한 책임이 결국 일으키는 것보다 훨씬 많은 사고를 막을 수도 있는 기술의 개발을 위축시킬 수 있다고 우려한다.

The debate shows that new technologies can require not only new rules but new ways of thinking about responsibility itself.
이 논쟁은 새로운 기술이 새로운 규칙뿐 아니라 책임 자체에 대해 생각하는 새로운 방식을 요구할 수 있음을 보여 준다.

해석 · Justice by Bargain

In the United States, the vast majority of criminal convictions, more than ninety percent, result not from trials but from plea bargains.
미국에서 형사 유죄 판결의 압도적 다수, 즉 90퍼센트 이상은 재판이 아니라 플리 바겐에서 나온다.

A defendant agrees to plead guilty, usually in exchange for a reduced charge or a lighter sentence.
피고인은 보통 혐의 경감이나 더 가벼운 형량을 대가로 유죄를 인정하기로 동의한다.

Supporters argue that the system is efficient: trials are slow and expensive, and courts could not function if every case went to trial.
지지자들은 이 제도가 효율적이라고 주장한다. 재판은 느리고 비싸며, 모든 사건이 재판으로 간다면 법원은 기능할 수 없을 것이다.

Both sides gain certainty, and victims may be spared the ordeal of testifying.
양측은 확실성을 얻고, 피해자는 증언하는 시련을 면할 수 있다.

Critics see a darker side.
비판자들은 더 어두운 면을 본다.

Prosecutors can threaten much harsher sentences if a defendant insists on a trial, creating what some call a "trial penalty."
검사는 피고인이 재판을 고집하면 훨씬 가혹한 형량을 위협할 수 있으며, 이는 일부가 '재판 처벌'이라 부르는 것을 만든다.

Faced with the risk of decades in prison, even innocent defendants may rationally choose to plead guilty to a lesser charge.
수십 년의 징역 위험에 직면하면 무고한 피고인조차 더 가벼운 혐의에 대해 합리적으로 유죄를 인정하는 쪽을 택할 수 있다.

Studies of people later cleared by DNA evidence have found that a notable share had pleaded guilty.
나중에 DNA 증거로 무죄가 밝혀진 사람들에 대한 연구는 상당한 비율이 유죄를 인정했었다는 것을 발견했다.

The system thus raises a fundamental question: whether a process designed for efficiency can still reliably separate the guilty from the innocent.
따라서 이 제도는 근본적인 질문을 제기한다. 효율을 위해 설계된 절차가 여전히 유죄인 사람과 무고한 사람을 확실하게 가려낼 수 있는가?

해석 · When Results Are Significant but Small

Scientific studies often report that a result is "statistically significant," and many readers take this to mean that the effect is large or important.
과학 연구들은 흔히 결과가 '통계적으로 유의하다'고 보고하며, 많은 독자는 이것을 효과가 크거나 중요하다는 뜻으로 받아들인다.

It means nothing of the kind.
그것은 전혀 그런 뜻이 아니다.

Statistical significance indicates only that the observed result would be unlikely if there were truly no effect at all.
통계적 유의성은 단지 실제로 효과가 전혀 없다면 관찰된 결과가 나오기 어렵다는 것만을 나타낸다.

With a large enough sample, even a tiny effect can be statistically significant.
표본이 충분히 크면 아주 작은 효과도 통계적으로 유의할 수 있다.

A drug that lowers blood pressure by half a point might pass the test in a study of a hundred thousand people while being medically meaningless.
혈압을 0.5포인트 낮추는 약은 10만 명을 대상으로 한 연구에서 검정을 통과할 수 있지만 의학적으로는 무의미할 수 있다.

Conversely, a genuinely important effect may fail to reach significance in a small study simply because there was too little data.
반대로 진정으로 중요한 효과도 단지 데이터가 너무 적어서 작은 연구에서 유의성에 도달하지 못할 수 있다.

For this reason, statisticians urge researchers to report effect sizes, which describe how large an effect is, along with confidence intervals that show the range of plausible values.
이런 이유로 통계학자들은 연구자들에게 효과가 얼마나 큰지 기술하는 효과 크기를, 그럴듯한 값의 범위를 보여 주는 신뢰 구간과 함께 보고하라고 촉구한다.

The question that matters is usually not "Is there an effect?" but "How big is it, and is it big enough to care about?"
중요한 질문은 보통 '효과가 있는가?'가 아니라 '그것이 얼마나 크며, 신경 쓸 만큼 큰가?'이다.

해석 · The Test Says Positive

Suppose a disease affects one person in a thousand, and a test for it is ninety-nine percent accurate.
어떤 병이 천 명 중 한 명에게 생기고, 그에 대한 검사가 99퍼센트 정확하다고 가정해 보자.

If you test positive, what is the chance that you actually have the disease?
당신이 양성 판정을 받았다면, 실제로 그 병에 걸렸을 확률은 얼마인가?

Most people, including many doctors, answer about ninety-nine percent.
많은 의사를 포함해 대부분의 사람은 약 99퍼센트라고 답한다.

The correct answer is roughly nine percent.
정답은 대략 9퍼센트다.

Imagine testing a hundred thousand people: about a hundred have the disease and nearly all of them test positive, but of the remaining 99,900 healthy people, one percent, nearly a thousand, also test positive by mistake.
10만 명을 검사한다고 상상해 보라. 약 100명이 병에 걸려 있고 그들 거의 모두가 양성으로 나오지만, 나머지 건강한 99,900명 중 1퍼센트, 즉 거의 천 명도 잘못하여 양성으로 나온다.

So among roughly eleven hundred positive results, only about a hundred are true.
따라서 약 1,100건의 양성 결과 중 약 100건만 진짜다.

The error people make is called base rate neglect: they focus on the accuracy of the test and ignore how rare the disease is in the first place.
사람들이 저지르는 오류는 기저율 무시라고 불린다. 그들은 검사의 정확도에 집중하고 그 병이 애초에 얼마나 드문지를 무시한다.

The same reasoning applies to security screening, fraud detection, and any search for something rare.
같은 추론이 보안 검색, 사기 탐지, 그리고 드문 무언가를 찾는 모든 일에 적용된다.

When the thing being sought is uncommon, even an accurate test will produce many false alarms, which is why positive results for rare conditions are usually confirmed with a second, independent test.
찾는 대상이 드물 때는 정확한 검사도 많은 오경보를 낳으며, 그래서 드문 질환에 대한 양성 결과는 보통 두 번째의 독립적인 검사로 확인된다.

해석 · When the Whole Contradicts the Parts

In the 1970s, the University of California, Berkeley, appeared to admit men to graduate school at a higher rate than women, and the university was concerned about discrimination.
1970년대 캘리포니아 대학교 버클리는 대학원에 남성을 여성보다 더 높은 비율로 합격시키는 것처럼 보였고, 대학은 차별을 우려했다.

When researchers examined admissions department by department, however, they found that most departments admitted women at equal or slightly higher rates than men.
그러나 연구자들이 학과별로 입학을 조사하자, 대부분의 학과가 여성을 남성과 같거나 약간 더 높은 비율로 합격시켰다는 것을 발견했다.

How could the overall figure favor men while the individual departments did not?
전체 수치는 남성에게 유리한데 개별 학과들은 그렇지 않은 일이 어떻게 가능했을까?

The answer was that women applied disproportionately to highly competitive departments that rejected most applicants of either sex, while men applied more often to departments that accepted most applicants.
답은 여성들이 남녀 불문하고 대부분의 지원자를 떨어뜨리는 매우 경쟁적인 학과에 불균형적으로 많이 지원했고, 남성들은 대부분의 지원자를 받아들이는 학과에 더 자주 지원했다는 것이었다.

Combining the departments hid this difference and produced a misleading total.
학과들을 합치자 이 차이가 가려져 오해를 부르는 합계가 나왔다.

This phenomenon, in which a trend that appears in several groups reverses when the groups are combined, is known as Simpson's paradox.
여러 집단에서 나타나는 추세가 집단들을 합치면 뒤집히는 이 현상은 심프슨의 역설로 알려져 있다.

It appears in medicine as well, where a treatment can look worse overall simply because it is given more often to the most seriously ill patients.
그것은 의학에서도 나타나는데, 어떤 치료가 단지 가장 심각하게 아픈 환자들에게 더 자주 주어지기 때문에 전체적으로 더 나빠 보일 수 있다.

The paradox warns that aggregated data can mislead, but it does not tell us which level of analysis is correct; answering that requires understanding what causes what.
이 역설은 합산된 데이터가 오해를 부를 수 있다고 경고하지만, 어떤 분석 수준이 옳은지는 알려 주지 않는다. 그것에 답하려면 무엇이 무엇을 일으키는지 이해해야 한다.

해석 · Falling Back to Average

In the 1870s, Francis Galton noticed that very tall parents tended to have children who were tall, but on average not as tall as their parents.
1870년대 프랜시스 골턴은 키가 매우 큰 부모가 키 큰 자녀를 두는 경향이 있지만, 평균적으로 그 부모만큼 크지는 않다는 것을 알아챘다.

Very short parents, similarly, had children who were somewhat taller than themselves.
마찬가지로 키가 매우 작은 부모는 자신보다 다소 큰 자녀를 두었다.

He called this regression toward the mean.
그는 이것을 평균으로의 회귀라고 불렀다.

The pattern arises whenever an outcome depends partly on stable factors and partly on chance.
이 패턴은 결과가 부분적으로는 안정적 요인에, 부분적으로는 우연에 달려 있을 때마다 생긴다.

An extreme result is likely to involve unusual luck, which is unlikely to repeat.
극단적인 결과에는 이례적인 운이 섞여 있을 가능성이 높으며, 그 운은 반복될 가능성이 낮다.

Regression explains many misleading impressions.
회귀는 많은 오해를 부르는 인상을 설명한다.

Flight instructors once noticed that pilots who were praised for an exceptionally good landing usually did worse next time, while those criticized for a bad landing usually improved.
비행 교관들은 한때 유난히 좋은 착륙으로 칭찬받은 조종사들이 보통 다음번에 더 못했고, 나쁜 착륙으로 비판받은 조종사들은 보통 나아졌다는 것을 알아챘다.

They concluded that criticism works better than praise.
그들은 비판이 칭찬보다 더 효과적이라고 결론지었다.

But the changes would have happened anyway: exceptional landings tend to be followed by more ordinary ones, whatever the instructor says.
그러나 그 변화는 어쨌든 일어났을 것이다. 교관이 무슨 말을 하든 예외적인 착륙 뒤에는 더 평범한 착륙이 따르는 경향이 있다.

The same error leads people to credit treatments, policies, or new coaches for improvements that would have occurred naturally after an unusually bad period.
같은 오류 때문에 사람들은 이례적으로 나쁜 시기 뒤에 자연스럽게 일어났을 개선을 치료, 정책, 새 코치의 공으로 돌린다.

해석 · The Law of First Digits

You might expect the first digits of numbers in real-world data, such as city populations or river lengths, to be spread evenly from one to nine.
도시 인구나 강 길이 같은 실제 데이터에서 숫자의 첫 자리가 1부터 9까지 고르게 퍼져 있을 것이라고 예상할 수 있다.

In fact, the digit one appears first about thirty percent of the time, while nine appears first less than five percent of the time.
실제로는 숫자 1이 첫 자리에 약 30퍼센트의 빈도로 나타나는 반면, 9는 5퍼센트 미만으로 나타난다.

This pattern is called Benford's law, after the physicist who documented it across many kinds of data.
이 패턴은 여러 종류의 데이터에서 그것을 기록한 물리학자의 이름을 따 벤퍼드의 법칙이라고 불린다.

It arises in data that span several orders of magnitude and grow by multiplication, because a number must double to move from one to two but increase by only about eleven percent to move from nine to ten.
그것은 여러 자릿수에 걸쳐 있고 곱셈으로 증가하는 데이터에서 생기는데, 1에서 2로 가려면 숫자가 두 배가 되어야 하지만 9에서 10으로 가려면 약 11퍼센트만 증가하면 되기 때문이다.

Numbers therefore spend more time with a leading one than with a leading nine.
따라서 숫자들은 첫 자리가 9일 때보다 1일 때 더 오래 머문다.

Accountants and auditors use the law to detect fraud.
회계사와 감사인은 사기를 탐지하는 데 이 법칙을 사용한다.

People who invent numbers tend to distribute first digits too evenly, so fabricated records often deviate from the expected pattern.
숫자를 지어내는 사람들은 첫 자리를 너무 고르게 분포시키는 경향이 있어서, 조작된 기록은 흔히 예상 패턴에서 벗어난다.

The method has limits, however.
그러나 이 방법에는 한계가 있다.

Data with fixed ranges, such as human heights or prices set just below round numbers, do not follow the law, so a deviation is a reason for further investigation rather than proof of wrongdoing.
사람의 키나 딱 떨어지는 숫자 바로 아래로 정해진 가격처럼 범위가 고정된 데이터는 이 법칙을 따르지 않으므로, 이탈은 부정행위의 증거가 아니라 추가 조사의 이유다.

해석 · The Dark Side of Expectation

The placebo effect, in which an inactive treatment produces real improvement, has a less famous twin: the nocebo effect.
비활성 치료가 실제 호전을 낳는 위약 효과에는 덜 유명한 쌍둥이가 있다. 바로 노시보 효과다.

When people expect a treatment to cause harm, they often experience negative symptoms even if the treatment is inert.
사람들이 어떤 치료가 해를 끼칠 것이라고 예상하면, 그 치료가 비활성이더라도 흔히 부정적인 증상을 경험한다.

In clinical trials, a substantial proportion of patients receiving sugar pills report side effects such as headaches, fatigue, or nausea, and some drop out of the trial because of them.
임상 시험에서 설탕 알약을 받은 환자의 상당 비율이 두통, 피로, 메스꺼움 같은 부작용을 보고하며, 일부는 그것 때문에 시험에서 중도 탈락한다.

The symptoms are not imaginary in the sense of being invented; anxiety and attention can produce or amplify genuine bodily sensations.
그 증상들은 꾸며낸 것이라는 의미에서 상상의 것이 아니다. 불안과 주의는 진짜 신체 감각을 만들어 내거나 증폭할 수 있다.

The effect poses a dilemma for doctors.
이 효과는 의사들에게 딜레마를 안긴다.

Patients have a right to be informed about possible side effects, yet the very act of listing them may increase their occurrence.
환자들은 가능한 부작용에 대해 알 권리가 있지만, 그것을 나열하는 행위 자체가 그 발생을 늘릴 수 있다.

Some researchers suggest framing information carefully, for example by emphasizing that most patients tolerate a drug well, without hiding the risks.
일부 연구자들은 위험을 숨기지 않으면서 대부분의 환자가 약을 잘 견딘다는 것을 강조하는 식으로 정보를 신중하게 틀 짓자고 제안한다.

The nocebo effect may also help explain why some people report symptoms after hearing alarming news about a medication, even when studies show no real risk.
노시보 효과는 또한 연구들이 실제 위험이 없다고 보여 주는데도 왜 일부 사람들이 약에 관한 걱정스러운 뉴스를 들은 뒤 증상을 보고하는지 설명하는 데 도움이 될 수 있다.

해석 · The Ecology of Cities

In 1961 the writer and activist Jane Jacobs challenged the urban planners of her day, who sought to replace crowded, mixed neighborhoods with orderly zones of housing, offices, and highways.
1961년 작가이자 활동가인 제인 제이컵스는 붐비고 뒤섞인 동네를 주거, 사무실, 고속도로의 질서 정연한 구역으로 바꾸려 했던 당대의 도시 계획가들에게 도전했다.

She argued that the apparent disorder of old city streets was in fact a sophisticated form of order.
그녀는 오래된 도시 거리의 겉보기 무질서가 사실은 정교한 형태의 질서라고 주장했다.

Short blocks, mixed uses, buildings of different ages, and dense populations brought people onto the streets at all hours.
짧은 블록, 혼합된 용도, 서로 다른 연식의 건물, 밀집한 인구는 사람들을 시간에 상관없이 거리로 불러냈다.

Shopkeepers and residents who watched the sidewalks provided "eyes on the street," making neighborhoods safer without police.
보도를 지켜보는 가게 주인과 주민들은 '거리의 눈'을 제공하여 경찰 없이도 동네를 더 안전하게 만들었다.

Old, inexpensive buildings allowed small new businesses to start, and the constant mixing of different people generated ideas.
오래되고 저렴한 건물은 작은 신생 사업이 시작될 수 있게 했고, 서로 다른 사람들의 끊임없는 뒤섞임은 아이디어를 낳았다.

Jacobs's ideas were initially dismissed by planners, but they have since become central to urban thinking.
제이컵스의 생각은 처음에는 계획가들에게 무시당했지만, 이후 도시에 관한 사고의 중심이 되었다.

Economists have found evidence that dense, diverse cities produce more patents and new firms per person.
경제학자들은 밀집하고 다양한 도시가 1인당 더 많은 특허와 신생 기업을 만들어 낸다는 증거를 발견했다.

Ironically, the neighborhoods she celebrated have often become so desirable that rising rents push out the very small businesses and diverse residents that made them lively.
역설적이게도 그녀가 찬양한 동네들은 흔히 너무 인기가 높아져서, 오르는 임대료가 그 동네를 활기차게 만들었던 바로 그 작은 가게들과 다양한 주민들을 밀어낸다.

Her vision, in other words, can be undermined by its own success.
다시 말해 그녀의 비전은 그 자체의 성공 때문에 훼손될 수 있다.

해석 · Broken Windows, Broken Debate

In 1982 two social scientists proposed that visible signs of disorder, such as broken windows, graffiti, and public drinking, signal that no one is in control and encourage more serious crime.
1982년 두 사회 과학자는 깨진 창문, 낙서, 공공장소 음주 같은 눈에 보이는 무질서의 징후가 아무도 통제하지 않는다는 신호를 보내 더 심각한 범죄를 부추긴다고 제안했다.

Fixing small problems quickly, they argued, could prevent larger ones.
그들은 작은 문제를 신속히 바로잡으면 더 큰 문제를 막을 수 있다고 주장했다.

The theory influenced policing in many cities, most famously New York, where police aggressively targeted minor offenses in the 1990s.
이 이론은 많은 도시의 치안 활동에 영향을 주었고, 가장 유명하게는 1990년대 경찰이 경범죄를 공격적으로 단속한 뉴욕에서 그랬다.

Crime in New York then fell dramatically, and supporters credited the policy.
그 후 뉴욕의 범죄는 극적으로 줄었고, 지지자들은 그 정책의 공으로 돌렸다.

Critics pointed out that crime also fell sharply in cities that did not adopt such tactics, during the same period.
비판자들은 같은 시기에 그런 전술을 채택하지 않은 도시들에서도 범죄가 급격히 줄었다고 지적했다.

Other factors, including economic growth, changes in drug markets, and an aging population, may explain much of the decline.
경제 성장, 마약 시장의 변화, 인구 고령화를 포함한 다른 요인들이 그 감소의 상당 부분을 설명할 수 있다.

Aggressive enforcement of minor offenses also fell most heavily on poor and minority neighborhoods, damaging trust between residents and police.
경범죄에 대한 공격적 단속은 또한 가난한 동네와 소수자 동네에 가장 무겁게 떨어져 주민과 경찰 사이의 신뢰를 손상시켰다.

Some experiments support a narrower version of the theory: cleaning up vacant lots and repairing abandoned buildings, without arrests, has been linked to reductions in violence.
일부 실험은 이론의 더 좁은 버전을 뒷받침한다. 체포 없이 공터를 정리하고 버려진 건물을 수리하는 것이 폭력 감소와 연관되어 왔다.

The lesson may be that addressing physical disorder helps, but that equating disorder with arrests misreads the idea.
교훈은 물리적 무질서를 해결하는 것은 도움이 되지만, 무질서 대응을 체포와 동일시하는 것은 그 생각을 잘못 읽은 것이라는 점일지 모른다.

해석 · When Crowds Are Wise

In 1906 Francis Galton observed a contest at a country fair in which about eight hundred people guessed the weight of an ox.
1906년 프랜시스 골턴은 한 시골 장터에서 약 800명이 황소의 무게를 맞히는 대회를 관찰했다.

Individual guesses varied widely, but their median was within one percent of the true weight, closer than most experts.
개별 추측은 크게 달랐지만, 그 중앙값은 실제 무게의 1퍼센트 이내로 대부분의 전문가보다 더 가까웠다.

This "wisdom of crowds" works because individual errors in different directions tend to cancel out when many independent estimates are combined.
이 '군중의 지혜'는 서로 다른 방향의 개인 오류가 많은 독립적 추정치를 합칠 때 상쇄되는 경향이 있기 때문에 작동한다.

The key word is independent.
핵심 단어는 '독립적'이다.

If people influence one another before guessing, their errors become correlated and no longer cancel.
사람들이 추측하기 전에 서로에게 영향을 주면, 그들의 오류는 상관관계를 갖게 되어 더 이상 상쇄되지 않는다.

In one experiment, participants who could see others' estimates converged toward a common answer and became more confident, yet their collective accuracy did not improve and sometimes worsened.
한 실험에서 다른 사람들의 추정치를 볼 수 있었던 참가자들은 공통된 답으로 수렴하며 더 자신감을 갖게 되었지만, 그들의 집단적 정확도는 나아지지 않았고 때로는 나빠졌다.

Diversity matters as well: a crowd whose members share the same biases will simply reproduce those biases on a larger scale.
다양성도 중요하다. 구성원들이 같은 편향을 공유하는 군중은 그 편향을 더 큰 규모로 재생산할 뿐이다.

The conditions that make crowds wise are thus easily destroyed by social media, meetings dominated by a few voices, or groups drawn from a single background.
따라서 군중을 지혜롭게 만드는 조건은 소셜 미디어, 소수의 목소리가 지배하는 회의, 단일 배경에서 뽑힌 집단에 의해 쉽게 파괴된다.

Organizations that want to benefit from collective judgment often ask members to record their views privately before any discussion.
집단적 판단에서 이익을 얻고자 하는 조직들은 흔히 구성원들에게 어떤 토론이든 하기 전에 각자의 견해를 비공개로 기록하라고 요청한다.

해석 · Foxes and Hedgehogs

For nearly two decades, the psychologist Philip Tetlock collected thousands of predictions from experts on politics and economics and later checked how accurate they had been.
거의 20년 동안 심리학자 필립 테틀록은 정치와 경제 전문가들로부터 수천 개의 예측을 모았고, 나중에 그것들이 얼마나 정확했는지 확인했다.

The average expert performed only slightly better than random guessing, and often worse than simple statistical rules.
평균적인 전문가는 무작위 추측보다 아주 약간 더 잘했을 뿐이며, 흔히 단순한 통계적 규칙보다 못했다.

Yet some experts did much better than others, and the difference lay not in what they knew but in how they thought.
그러나 일부 전문가는 다른 이들보다 훨씬 잘했으며, 그 차이는 그들이 무엇을 알았느냐가 아니라 어떻게 생각했느냐에 있었다.

Borrowing an image from an ancient Greek poet, Tetlock distinguished "hedgehogs," who know one big thing and explain everything through a single theory, from "foxes," who know many small things and draw on diverse sources.
고대 그리스 시인에게서 이미지를 빌려 와, 테틀록은 하나의 큰 것을 알고 모든 것을 단일 이론으로 설명하는 '고슴도치'와, 많은 작은 것을 알고 다양한 원천에 기대는 '여우'를 구분했다.

Foxes were consistently more accurate.
여우들이 일관되게 더 정확했다.

They were more willing to admit uncertainty, to change their minds in response to new evidence, and to see the world as complex.
그들은 불확실성을 인정하고, 새로운 증거에 따라 생각을 바꾸고, 세상을 복잡하게 보는 데 더 적극적이었다.

Hedgehogs, ironically, were more likely to appear in the media, because confident, simple stories make better television.
역설적이게도 고슴도치들은 언론에 등장할 가능성이 더 높았는데, 자신감 있고 단순한 이야기가 더 좋은 방송거리가 되기 때문이다.

Tetlock later found that ordinary volunteers trained to think like foxes, breaking problems into parts and updating frequently, could outperform professional analysts.
테틀록은 나중에 문제를 부분으로 나누고 자주 수정하는 등 여우처럼 생각하도록 훈련받은 평범한 자원봉사자들이 전문 분석가들을 능가할 수 있다는 것을 발견했다.