

[ I ] 次の英文を読み、下の問に答えなさい。

① <sup>1)</sup> How did the world end up with 7,000 languages, instead of our all sharing the same language? Already for tens of thousands of years before language spread by the Internet and Facebook, there has been ample opportunity for language differences to disappear, because most traditional peoples have had contact with neighboring peoples, with whom they intermarry and trade, and from whom they borrow words and ideas and behaviors. Something must have caused languages, even in the past and under traditional conditions, to diverge and to remain separate, in the face of all that contact.

② Here's how it happens. Any of us over the age of 40 has observed that languages change even over the course of just a few decades, with some words dropping out of use, new words being <sup>2)</sup> coined, and pronunciation shifting. For instance, whenever I revisit Germany, where I lived in 1961, young Germans notice that they have to explain to me some new German words (e.g., the new word *Händi* for cell phones, which didn't exist in 1961), and that I still use some old-fashioned German words that have been going out of use since 1961 (e.g., *jener/jene* for "that/those"). But young Germans and I can still mostly understand each other well. Similarly, you American readers under the age of 40 may not recognize some formerly popular English words like "ballyhoo," but <sup>3)</sup> in compensation you daily use the verb "to Google" and the participle "Googling," which didn't exist in my childhood.

③ After a few centuries of such independent changes in two geographically separate speech communities derived from the same original speech community, the communities develop dialects that may pose difficulties for each other to understand: e.g., the modest differences between American and British English, the bigger differences between the French of Quebec and of metropolitan France, and the still bigger differences between Afrikaans and Dutch. After 2,000 years of divergence, the speech communities have diverged so much as to be no longer mutually <sup>4)</sup> intelligible, although to linguists <sup>5)</sup> they are still obviously related—such as the French and Spanish and Romanian languages derived from Latin, or the English and German and other Germanic languages derived from proto-Germanic. Finally, after about 10,000 years, the differences are so great that most linguists would assign the languages to unrelated language families without any detectable relationships.

④ Thus, languages evolve differences because different groups of people independently develop different words and different pronunciations over the course of time. But the question remains why those diverged languages don't  again when formerly separated

people spread out and re-contact each other at speech boundaries. For instance, at the modern boundary between Germany and Poland, there are Polish villages near German villages, but the villagers still speak a <sup>6)</sup>local variety of either German or of Polish, rather than a German-Polish mish-mash. Why is that so?

⑤ Probably the main disadvantage of speaking a mish-mash involves a basic function of human language: as soon as you start to speak to someone else, your language serves as an instantly recognizable badge of your group identity. It's much easier for wartime spies to <sup>7)</sup>don the enemy's uniform than to imitate convincingly the enemy's language and pronunciation. People who speak *your* language are *your* people: they'll recognize you as a <sup>8)</sup>compatriot, and they'll support you or at least not be immediately suspicious of you, whereas someone speaking a different language is apt to be regarded as a potentially dangerous stranger. That instant distinction between friends and strangers still operates today: just see how you (my American readers) react the next time that you're in Uzbekistan, and you finally to your relief hear someone behind you speaking English with an American accent.

⑥ The distinction between friends and strangers was even more important in the past, often a matter of life and death. It's important to speak the language of at least some community, so that there will be some group that considers you as "our own." If you instead speak a mish-mash near a speech boundary, both groups may understand much of what you say, but neither group will consider you "one of our own," and <sup>9)</sup>you can't count on either group to welcome and protect you. That may be why the world's speech communities have tended to remain thousands of separate languages, instead of the whole world speaking one language or forming one dialect chain.

(Jared Diamond, *The World Until Yesterday* より一部改変)

問1 パラグラフ①の下線部 1) How did the world end up with 7,000 languages とほぼ同じ内容の文を1つ選びなさい。答はマークシートの(1)にマークしなさい。

1. Why does the world need 7,000 languages?
2. Why are there 7,000 languages in the world?
3. Why did the world start integrating 7,000 languages?
4. Why did the world stop creating more than 7,000 languages?

問2 パラグラフ②の下線部 2) coined に最も近い意味の語を選びなさい。答はマークシートの(2)にマークしなさい。

1. created
2. defined
3. forged
4. tossed

問3 パラグラフ②の下線部 3) in compensation の言い換えとして最も適切なものを選びなさい。

答はマークシートの(3)にマークしなさい。

1. in anticipation    2. in preparation    3. in return    4. in reward

問4 パラグラフ③の下線部 4) intelligible に最も近い意味の語を選びなさい。答はマークシートの(4)にマークしなさい。

1. accessible    2. comprehensible    3. divergent    4. reactive

問5 パラグラフ③の下線部 5) they が指しているものとして、最も適切なものを選びなさい。答はマークシートの(5)にマークしなさい。

1. modest differences                      2. speech communities  
3. independent changes                      4. detectable relationships

問6 パラグラフ④の□に入る最も適切な語を選びなさい。答はマークシートの(6)にマークしなさい。

1. confirm    2. merge    3. recover    4. split

問7 パラグラフ④の下線部 6) local variety とほぼ同じ意味の語を、パラグラフ⑤～⑥より英語で1語抜き出しなさい。単数、複数の別は問いません。答は記述式解答用紙の所定の欄に記入しなさい。

問8 パラグラフ⑤の下線部 7) don と最も近い意味の語(句)を選びなさい。答はマークシートの(7)にマークしなさい。

1. detect    2. recognize    3. take off    4. wear

問9 パラグラフ⑤の下線部 8) compatriot と置き換えるのに適当でない語を1つ選びなさい。答はマークシートの(8)にマークしなさい。

1. comrade    2. countryman    3. friend    4. representative

問10 パラグラフ⑥の下線部 9) you can't count on either group to welcome and protect you. とほぼ同じ内容の文を1つ選びなさい。答はマークシートの(9)にマークしなさい。

1. You can't be counted as a friend or as an enemy.  
2. The count can lead the army against the enemies.  
3. You can be protected by your friends and not by your enemies.  
4. Neither friends nor enemies can be expected to support or defend you.

問 11 以下の文のうち本文の内容と合致するものを3つ選び、記述式解答用紙の解答欄に番号を記入しなさい。

1. The English language evolved from Latin.
2. Languages change even within a generation.
3. Geography contributed to the formation of new languages.
4. Afrikaans is the term used to describe all languages spoken in Africa.
5. The languages of communities rejoining after periods of long separation will combine rapidly.
6. Before the invention of the Internet and Facebook there was no opportunity for languages to spread all over the world.
7. After a very long duration of time some languages come to appear absolutely independent from each other, although they derive from the same origin.

〔Ⅱ〕 次の英文を読み、下の問に答えなさい。

① In the past three decades, the rise of sushi has placed new demands on tuna stocks. Curiously, tuna sushi is a relatively new invention, even in Japan. As Trevor Corson, an East Asia scholar and author of *The Story of Sushi*, wrote me recently, the cultured <sup>1)</sup>palates of the Japanese aristocracy generally preferred delicate white-fleshed snappers and breams over heavy, red-fleshed tunas. “Many of the so-called ‘red’ fish were thought to be too pungent and smelly,” Corson wrote, “so in the days before refrigeration, <sup>2)</sup>discerning Japanese diners avoided them.” All this began to change in the nineteenth century, when an abundant catch of tuna one season prompted a Tokyo street-stand sushi chef to marinate a few pieces of tuna in soy sauce and serve it as “nigiri sushi.” <sup>3)</sup>The practice caught on. Generally, smaller, leaner yellowfin tuna were used for nigiri. Occasionally a big, fatty bluefin came to market, but as Corson pointed out, these big bluefin were nicknamed *shibi*, or “four days,” because chefs felt they had to bury them in the ground for four days to ferment and mellow the heavy, bloody taste of the meat. From the few stalls that served it in the Edo period, tuna caught on and by the 1930s was considered an <sup>4)</sup>integral part of a good sushi meal.

② At first, Japanese tuna fishing was relatively <sup>5)</sup>contained. As a term of Japan’s surrender at the conclusion of World War II, Japanese vessels were prohibited from fishing beyond their territorial waters throughout the 1940s. But when the prohibition was lifted in 1952, things started to change. As Dr. Ziro Suzuki, an authority on Japanese offshore

fisheries wrote to me, “In order to recover from the devastation of the war, Japanese fishermen needed more tunas to secure food for domestic demand and also to earn more money by exporting tunas to the canning industries in Europe and the U.S.” When the technology to deep-freeze tuna in the holds of fishing vessels was invented in the 1970s, though, more and more tuna could be served raw rather than canned. Suddenly fishermen could haul in tuna from the farthest reaches of the oceans, freeze them immediately, and keep their catch sushi-ready for as long as a year. Sushi tuna was suddenly

③ The evolution of the Western/Japanese sushi relationship had other <sup>6)</sup> twists. In the late 1960s and early '70s, Americans and Canadians ramped up the sportfishing of giant, thousand-pound Atlantic bluefin tuna, principally off Canada's Prince Edward Island and Nova Scotia. Most of these fish were caught, killed, and then discarded at the town dump, for, just like the Japanese, Americans considered bluefin too bloody to eat and had no interest in bringing home their catch. [ 1 ] But the bluefin sport fishery developed at the same time as the Japanese export boom to North America. [ 2 ] Cargo planes from Japan, stuffed with electronics and other consumer goods, would arrive in American airports only to fly back empty to Japan—a huge waste of fuel. [ 3 ] It was only when several Japanese executives realized that they could buy bluefin for pennies on the pound from American sportfishermen that they began filling empty cargo holds with bluefin and flying them back to Japan. [ 4 ] This fetishization boomeranged back to the West, which soon developed its own bluefin appetite.

④ The West's <sup>7)</sup> embrace of the Japanese sushi tradition had another multiplier effect: it brought people who had previously disliked fish into the fish-eating fold. I saw <sup>8)</sup> this immediate effect within my own family when my brother moved to Los Angeles to become a screenwriter. “You know how I've always been about cooked fish,” he wrote me when I asked him about his newfound sushi habit. “I couldn't stand the smell or the taste or the texture. The few times I had to eat fish were usually at dinner parties. In those cases, I would breathe through my mouth so I couldn't smell it and swallow small pieces whole so I wouldn't have to taste it.

⑤ “Okay, cut to 1992,” my brother, the writer of horror films like *Halloween H20* and the Stephen King adaptation *1408*, continued. “I've just moved to Los Angeles.  a lot of peer pressure, I finally agreed to go to our local sushi restaurant to try some. I ordered a regular tuna roll, thinking I would do my hold-my-breath-and-swallow-it-whole thing. But when it arrived, I immediately noticed something different—it didn't smell ‘fishy.’ I dipped a piece in soy sauce mixed with a little wasabi, put the damn thing in my mouth, and chewed. Man, it was like that great moment in the film *Ratatouille*, where the evil food

critic tries the eponymous dish and is suddenly transfigured. The raw tuna tasted nothing like cooked fish. Pun intended, I was hooked.”

⑥ What my brother tasted was a <sup>9)</sup> biochemical phenomenon that can be experienced with many high-speed, fatty fish but which is particularly true of tuna. Hard-swimming fish like tuna use large amounts of chemical called adenosine triphosphate (ATP) to store and expend energy. After death ATP is converted to inosine monophosphate (IMP), a chemical associated with the “fifth” flavor Japanese call umami, or “tastiness.” It is a flavor that even non-fish eaters find pleasant on the tongue. When cooked, however, IMP breaks down and combines with other chemicals present in fish and produces flavors that people like my brother find unpalatable. In addition, the odors that might be emitted by not-so-fresh fish are neutralized in Japanese sushi techniques by soy, ginger, and wasabi. (Paul Greenberg, *Four Fish* より)

問1 パラグラフ①の下線部 1) palates に最も近い意味の語を選びなさい。答はマークシートの (10) にマークしなさい。

1. feelings
2. noses
3. stomachs
4. tastes

問2 パラグラフ①の下線部 2) discerning に最も近い意味の語を選びなさい。答はマークシートの (11) にマークしなさい。

1. crude
2. gentle
3. refined
4. stylish

問3 パラグラフ①の下線部 3) the practice の内容として最も適切なものを選びなさい。答はマークシートの (12) にマークしなさい。

1. to bury bluefin in the ground to ferment them
2. to use smaller, leaner yellowfin tuna for nigiri
3. to serve pieces of seasoned tuna as nigiri sushi
4. to marinate a few pieces of tuna at street-stands

問4 パラグラフ①の下線部 4) integral と置き換えてもほぼ同じ意味になる語を1つ選びなさい。答はマークシートの (13) にマークしなさい。

1. additional
2. appropriate
3. effective
4. essential

問5 パラグラフ②の下線部 5) contained と最も近い意味でこの言葉を用いている文章を選びなさい。答はマークシートの (14) にマークしなさい。

1. Citrus fruits contain plenty of vitamin C.
2. Her statement contained one or two inaccuracies.
3. Government managed to contain the spread of the flu.
4. The food in the tin can contains only a few grams of sugar.

問6 パラグラフ②の□に入る最も適切な語を選びなさい。答はマークシートの(15)にマークしなさい。

1. consumable    2. edible    3. exportable    4. fashionable

問7 パラグラフ③の下線部 6) twists の説明として最も適切なものを選びなさい。答はマークシートの(16)にマークしなさい。

1. the difference of preparing tuna sushi by hand  
2. the unexpected changes in the taste of Western/Japanese sushi tuna  
3. the unexpected complications in the Western/Japanese sushi relationship  
4. the unexpected developments in the Western/Japanese sushi relationship

問8 パラグラフ③の〔1〕～〔4〕のうち、以下の文が入る最も適切な箇所を選びなさい。答はマークシートの(17)にマークしなさい。

Within a few years, Japanese began esteeming bluefin above all other tuna.

問9 パラグラフ④の下線部 7) embrace に最も近い意味の語を選びなさい。答はマークシートの(18)にマークしなさい。

1. acceptance    2. expectancy    3. hug    4. image

問10 パラグラフ④の下線部 8) this immediate effect within my own family の説明として最も適切なものを選びなさい。答はマークシートの(19)にマークしなさい。

1. The author's brother mysteriously began to appreciate the taste of cooked fish anew after trying raw tuna at a sushi restaurant in Los Angeles.  
2. When a tuna roll was served at a local sushi restaurant in Los Angeles, the author's brother immediately noticed something unusual, but he could barely swallow it.  
3. The author's brother, who could not stand the smell of cooked fish, was thoroughly fascinated by the taste of raw tuna after trying it at a sushi restaurant in Los Angeles.  
4. In his letter, the author's brother strongly recommended trying cooked tuna, after he ate raw tuna at a sushi restaurant in Los Angeles, even though he himself could not stand the smell of cooked fish.

問11 パラグラフ⑤の□に入る最も適切な語を選びなさい。答はマークシートの(20)にマークしなさい。

1. After    2. Against    3. Because    4. Before

問 12 パラグラフ⑥の下線部 9) biochemical phenomenon に相当する最も適切なものを選びなさい。答はマークシートの (21) にマークしなさい。

1. IMP is a chemical associated with tastiness.
2. After fishes' death ATP is converted to IMP.
3. Tuna use large amounts of ATP to store and expend energy.
4. The odors emitted by not-so-fresh fish are neutralized by soy, ginger, and wasabi.

問 13 以下の文のうち本文の内容と合致するものを2つ選び、記述式解答用紙の解答欄に番号を記入しなさい。

1. It was not until the nineteenth century that tuna began to find use in nigiri sushi.
2. The author first learned in his brother's letter that he had acquired a habit of eating sushi.
3. Before onboard freezing technology was developed, tuna had mainly been served in canned form in Europe and the U.S.
4. Once they caught bluefin tuna, American and Canadian sportfishermen cooked and ate it on the spot without bringing home their catch.
5. After World War II, when the prohibition was removed, Japanese fishermen relied upon tuna to earn money rather than to secure food.

〔Ⅲ〕 次の英文を読み、下の問に答えなさい。

① In the forests of North America there is a species of cicada with a very strange life cycle. For 17 years these cicadas hide underground doing very little except sucking on the roots of the trees. Then in May of the 17th year they emerge at the surface en masse to invade the forest: up to a million of them appearing for each acre.

② The cicadas sing away to one another, trying to attract mates. Together they make so much noise that local residents often move out for the duration of this 17-yearly invasion. Bob Dylan was inspired to write his song 'Day of the Locusts' when he heard the 1) cacophony of cicadas that emerged in the forests around Princeton when he was collecting an honorary degree from the university in 1970.

③ After they have attracted a mate and become fertilized, the females each lay about 600 eggs above ground. Then, after six weeks of partying, the cicadas all die and the forest goes quiet again for another 17 years. The next generation of eggs hatch in midsummer, and 2) nymphs drop to the forest floor before burrowing through the soil until they find a

root to feed from, while they wait another 17 years for the next great cicada party.

④ It is an absolutely extraordinary feat of biological engineering that these cicadas can count the passage of 17 years. It is very rare for any cicada to emerge a year early or a year too late. The annual cycle that most animals and plants work to is controlled by changing temperatures and the seasons. <sub>3)</sub> There is nothing that is obviously keeping track of the fact that the Earth has gone around the Sun 17 times and can then trigger the emergence of these cicadas.

⑤ For a mathematician, the most curious feature is the choice of number: 17, a prime number. Is it just a coincidence that these cicadas have chosen to spend a prime number of years hiding underground? It seems not. There are other species of cicada that stay underground for 13 years, and a few that prefer to stay there for 7 years. All prime numbers. Rather amazingly, if a 17-year cicada does appear too early, then it isn't out by 1 year, but generally 4 years, apparently shifting to a  -year cycle. <sub>4)</sub> There really does seem to be something about prime numbers that is helping these various species of cicada. But what is it?

⑥ While scientists are not too sure, there is a mathematical theory that has emerged to explain the cicadas' <sub>5)</sub> addiction to primes. First, a few facts. A forest has at most one brood of cicada, so the explanation is not about sharing resources between different broods. In most years there is somewhere in the United States where a brood of prime number cicadas is emerging. 2009 and 2010 are cicada-free. In contrast, 2011 sees a massive brood of 13-year cicadas appearing in the south-eastern USA. (Incidentally, 2011 is a prime, but I do not think the cicadas are that clever.)

⑦ The best theory to date for the cicadas' prime number life cycle is the possible existence of a <sub>6)</sub> predator that also used to appear periodically in the forest, timing its arrival to coincide with the cicadas' and then feasting on the newly emerged insects. This is where natural selection kicks in, because cicadas that regulate their lives on a prime number cycle are going to meet predators far less often than non-prime number cicadas will.

⑧ For example, suppose that the predators appear every 6 years. Cicadas that appear every 7 years will coincide with the predators only every  years. In contrast, cicadas that appear every 8 years will coincide with the predators every  years; cicadas appearing every 9 years will coincide even more frequently: every  years.

⑨ Across the forests of North America there seems to have been real competition to find the biggest prime. The cicadas have been so successful that the predators have either starved or moved out, leaving the cicadas with their strange prime number life cycle.

(Marcus Du Sautoy, *The Number Mystery* より)

問1 パラグラフ②の下線部 1) cacophony とほぼ同じ意味で使われている語を、パラグラフ①～②から英語で1語抜き出さない。単数、複数の別は問いません。答は記述式解答用紙の所定の欄に記入しなさい。

問2 パラグラフ③の下線部 2) nymph の意味を日本語で答えなさい。答は記述式解答用紙の所定の欄に記入しなさい。

問3 パラグラフ④の下線部 3) の英文を50字以内の日本語に訳しなさい。ただし数字は2文字で1字とします。答は記述式解答用紙の所定の欄に記入しなさい。

問4 パラグラフ⑤の  に適切な数字を入れなさい。答は記述式解答用紙の所定の欄に記入しなさい。

問5 パラグラフ⑤の下線部 4) の英文を30字以内の日本語に訳しなさい。答は記述式解答用紙の所定の欄に記入しなさい。

問6 パラグラフ⑥の下線部 5) addiction の、この文脈中での意味に最も近い語を選びなさい。答はマークシートの(22)にマークしなさい。

1. hatred
2. interest
3. obsession
4. precaution

問7 パラグラフ⑦の下線部 6) predator の説明として最も適切なものを選びなさい。答はマークシートの(23)にマークしなさい。

1. a small animal that causes diseases
2. an animal that kills and eats other animals
3. an animal that is hunted, killed and eaten by another
4. a small animal that lives inside another animal and gets nutrients from it

問8 パラグラフ⑧の  A、 B、 C に適切な数字を入れなさい。答は記述式解答用紙の所定の欄に記入しなさい。

問9 以下の文のうち、本文の内容を最もよく表しているものを選びなさい。答はマークシートの(24)にマークしなさい。

1. The cicadas that won the competition among different broods to find the biggest prime survived most successfully.
2. If a predator also had a prime number life cycle, the likelihood that the cicadas would have won the survival games would have been lower.
3. The cicadas having the bigger prime number life cycle survived because the opportunities for the predators to meet them became fewer.
4. The cicadas, having made their predators either starve or move away, won the survival game among their broods to find the biggest prime number life cycle.