

科目

外国語(英語)

医学部医学科

注 意

1. 開始の合図があるまで、この問題冊子を開いてはいけません。
2. 問題は1ページから12ページにわたっています。問題冊子に不備がある場合は、直ちにその旨を監督者に申し出てください。
3. 解答用紙は4枚で、問題冊子とは別になっています。解答は、すべて解答用紙の所定の欄に記入してください。指定された解答用紙以外に記入した場合は、評価(採点)の対象としません。
4. 受験番号は、4枚の解答用紙のそれぞれの上部の欄に記入してください。
5. 解答用紙は持ち帰ってはいけません。
6. 下書用紙には、下書き用のマス目が書いてありますので、活用してください。
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# 問題訂正

○2月25日(日)

外国語「英語」 16時45分試験開始 医学部医学科

## <問題訂正>

外国語「英語」

10 ページ

2 (3)

(誤) …the form of sentence in English.

(正) …the form of a sentence in English.

12 ページ 下から3行目

出典

(誤) (Sam Walker, 2017 *Wall Street Journal*)

(正) (Sam Walker, 2017 The *Wall Street Journal*)

1 次の文章を読み、問いに答えなさい。

Professor Slobodchikoff and I approached the mountain meadow slowly, obliquely, softening our footfalls and conversing in whispers. It didn't make much difference. (A) Once we were within 50 feet of the clearing's edge, the alarm sounded: short, shrill notes in rapid sequence, like rounds of sonic bullets.

We had just trespassed on a prairie dog colony. The prairie dog, a North American analogue to Africa's meerkat, lives in subterranean societies of neighboring burrows. It comes up to look for food during the day and rarely ventures more than a few hundred feet from the center of town. The moment it detects a hawk, coyote, human or any other threat, it cries out to alert the cohort and takes appropriate evasive action. A prairie dog's voice has about as much acoustic appeal as a chew toy.

Slobodchikoff, an emeritus professor of biology at Northern Arizona University, has been analyzing the sounds of prairie dogs for more than 30 years. Not long after he started, he learned that prairie dogs had distinct alarm calls for different predators. Around the same time, separate researchers found that a few other species had similar vocabularies of danger. What Slobodchikoff claimed to discover in the following decades, however, was extraordinary: (B) Beyond identifying the type of predator, prairie dog calls also specified its size, shape, color and speed; the animals could even combine the structural elements of their calls in novel ways to describe something they had never seen before. No scientist had ever put forward such a thorough guide to the native tongue of a wild species or discovered one so intricate. Prairie dog communication is so complex, Slobodchikoff says—so expressive and rich in information—that it constitutes nothing less than language. (C)

That would be a brave claim to make about even the most overtly intelligent species—say, a chimpanzee or a dolphin—let alone some kind of dirt hamster with a brain that barely weighs more than a grape. The majority of linguists and animal communication experts maintain that language is restricted to a single species: ourselves. Perhaps because it is so ostensibly entwined with thought, with consciousness and our sense of self, language is the last stronghold encircling human exceptionalism. To concede that we share language with other species is to finally and fully admit that we are different from other animals only in degrees not in kind. In many people's minds, language is the “cardinal distinction between man and animal, a sheerly dividing line as abrupt and immovable as a cliff,” as Tom Wolfe argues in his book *The Kingdom of Speech*, published last year.

Slobodchikoff thinks that dividing line is an illusion. (D) To him, the idea that a human might have a two-way conversation with another species, even a humble prairie dog, is not a

pretense; it's an inevitability. And the notion that animals of all kinds routinely engage in sophisticated discourse with one another — that the world's ecosystems echo with elaborate animal idioms just waiting to be translated — is not **Doctor Dolittle**\*-inspired nonsense; it is <sup>(E)</sup> fact.

Like “life” and “consciousness,” “language” is one of those words whose frequent and casual use papers over an epistemological gap: No one really knows what language is or how it originated. At the center of this **conundrum**\* is a much-pondered question about the relationship between language and cognition more generally. <sup>(F)</sup> Namely, did the mind create language or did language create the mind? Throughout history, philosophers, linguists and scientists have argued eloquently for each possibility. Some have contended that thought and conscious experience necessarily come before language and that language evolved later, as a way to share thoughts. Others have declared that language is the very marrow of consciousness, that the latter requires the former as a foundation.

In lieu of a precise definition for language, many experts and textbooks fall back on the work of the American linguist Charles Hockett, who in the 1950s and '60s proposed a set of more than a dozen “design features” that characterize language, like **semanticity**\* — distinct sounds and symbols with specific meanings — and displacement, the ability to speak of things outside your immediate environment. He acknowledged that numerous animal communication systems had at least some of these features but maintained that only human language boasted them all. For those who think that language is a prerequisite for consciousness, the unavoidable conclusion is that animals possess neither.

To many biologists and neuroscientists, however, this notion entails **anthropocentrism**\*. There is now a consensus that numerous species, including birds and mammals, as well as octopuses and honeybees, have some degree of consciousness, that is, a subjective experience of the world — they feel, think, remember, plan and in some cases possess a sense of self. In parallel, although few scientists are as ready as Slobodchikoff to proclaim the existence of nonhuman language, the idea that many species have language-like abilities, that animal communication is vastly more sophisticated than Hockett and his peers realized, is gaining credence.

(中 略)

It did not take long for Slobodchikoff to master the basic vocabulary of **Flagstaff's**\* native prairie dogs. Prairie dog alarm calls are the vocal equivalent of wartime telegrams: concise, abrupt, stripped to essentials. By waiting, watching and recording, Slobodchikoff

soon learned to discriminate between "Hawk!" "Human!" and so on — a talent that he says anyone can develop with practice. He also discovered consistent variations in how prairie dogs use their alarm calls to evade predators.

<sup>(G)</sup> Something in Slobodchikoff's data troubled him, however. There was too much variation in the acoustic structure of alarm calls, much more than would be expected if their only purpose was to distinguish between types of predator. Slobodchikoff arranged for various dogs — a husky, a golden retriever, a Dalmatian and a cocker spaniel — to wander through a prairie dog colony one at a time. The recorded alarm calls were still highly variable, even though the intruders all belonged to the same predator class. "That led me to think, what if they are actually describing physical features?" Slobodchikoff remembers. What if, instead of barking out nouns, prairie dogs were forming something closer to descriptive phrases?

<sup>(H)</sup> To find out, he became a participant in his own experiment. Slobodchikoff and three colleagues paraded through two prairie dog colonies dressed in either jeans and white lab coats, or jeans and variously colored shirts: blue, gray, orange and green. The prairie dogs produced highly similar alarm calls for each person in the lab coat, except for one especially short researcher. But they chirped in very different ways for most of the different colored shirts. In a related experiment, three slender women differing in height by just a bit threaded through a prairie dog habitat dressed identically except for the color of their T-shirts. Again the animals varied their calls. And in another study, prairie dogs changed the rate of their chirping to reflect the speed of an approaching human.

If prairie dogs had sounds for color and speed, Slobodchikoff wondered, what else could they articulate? This time, he and his colleagues designed a more elaborate test.<sup>(I)</sup> First they built plywood silhouettes of a coyote and a skunk, as well as a plywood oval (to confront the prairie dogs with something foreign), and painted the three shapes black. Then they strung a nylon cord between a tree and an observation tower, attached the plywood figures to slotted wheels on the cord and pulled them across the colony like pieces of laundry. Despite their lack of familiarity with these props, the prairie dogs did not respond to the cutouts with a single generalized "unknown threat" call. Rather, their warnings differed depending on the attributes of the object. They unanimously produced one alarm call for the coyote silhouette; a distinct warning for the skunk; and a third, entirely novel call for the oval. And in a follow-up study, prairie dogs consistently barked in distinct ways at small and large cardboard squares strung above the colony. Instead of relying on a fixed repertory of alarm calls, they were modifying their exclamations in the moment to create something new — a **hallmark\*** of language Hockett called "productivity."

All this evidence, Slobodchikoff insists, elevates prairie dog alarm calls from the level of

mere “communication” into the realm of language. “Calling it communication sets up that us-versus-them divide,” he says. “I don’t think there is a gap. I think it all integrates in there. You can go to **Barnes & Noble**\* and pick up book after book that says humans are the only ones with language. That cheats our understanding of animal abilities and inhibits the breadth of our investigation. I would like to see people give animals more credence, and I think it’s happening now, slowly. But I would like to push it along a little faster.”

(Ferris Jabr, 2017, *The New York Times*, slightly modified)

\*注：Doctor Dolittle イギリス出身の小説家ヒュー・ロフティング作「ドリトル先生」シリーズの主人公

conundrum 難問

semanticity 意味性(言語体系が意味を伝達できる特性を有していること)

anthropocentrism 人類中心主義

Flagstaff アメリカ合衆国アリゾナ州北部にある都市名

hallmark 特性・特質

Barnes & Noble アメリカ合衆国最大の書店チェーン名

(1) 下線部(A)の状況を適切に述べている英文を全て選び、記号を解答欄に書きなさい。

- (a) The researchers made a desperate effort to hide themselves from the local mountain guardians.
- (b) In spite of all their efforts, the sensor device in the field caught the researchers, thus making a large alarm sound.
- (c) The alarm beep was so sharp and shrill that the creatures finally noticed the predators’ invasion into their colony.
- (d) The creatures’ prominent sense of alarm made it difficult for the researchers to approach them without being noticed.
- (e) The researchers’ efforts were in vain as the creatures suddenly vanished from the mountain meadow.
- (f) The researchers’ desperate efforts finally paid off as the creatures started to shrill loudly.
- (g) Despite the researchers’ efforts, the creatures suddenly started to make a shrill screaming call.

(2) なぜ下線部(B)のように言えるのですか。適切な理由を下の(a)~(e)から全て選び、記号を解答欄に書きなさい。

- (a) プレーリードッグは、捕食動物に対して様々な鳴き声を使い、巧みに威嚇していたから。
- (b) プレーリードッグの鳴き声の複雑さは、長い間謎とされてきたから。
- (c) プレーリードッグの鳴き声には、捕食動物か仲間かの区別を知らせる機能があったから。
- (d) プレーリードッグは、鳴き方の新たな組み合わせで初めて出会うものを表現する事さえできたから。
- (e) プレーリードッグの鳴き声は、捕食動物の大きさ、形、速度などを表現できたから。

(3) 下線部(C)をitの内容を明確にして日本語に訳しなさい。

(4) 下線部(D)はどのような意味ですか。解答用紙上の括弧内に適切な日本語を補い、文を完成させなさい。ただし下線部(D)をそのまま日本語に訳してはいけません。

(5) 下線部(E)のitの内容を50字以上80字以内の日本語で説明しなさい。

(6) 下線部(F)をめぐる対立してきた主張を本文から探し出し、それぞれについて解答用紙に印刷された括弧内に25字以上の適切な日本語を補い、文章を完成させなさい。

(7) 下線部(G)にある“Something”とは何ですか。簡潔な日本語で説明しなさい。

(8) 下線部(H)について、以下の問いに答えなさい。

(a) What did he want to find out? Answer in English by filling in the blank on the answer sheet.

(b) (a)を達成するために行った実験の結果はどのようなものでしたか。以下の3項目それぞれについてその結果の内容を簡潔な日本語でまとめなさい。

【色】      【大きさ】      【速さ】

(9) 下線部(I)の内容についてまとめた(a)~(f)の空欄を、指定された文字数の日本語で埋めなさい。ただし句読点も字数に数えます。

- (a) ( 15 字程度 )の三種類のシルエットをベニヤ板で作った。
- (b) (a)のシルエットに( 8 字程度 )。
- (c) 一本の木と監視塔を細いロープでつなぎ、ロープに( 8 字以内 )を装着した。
- (d) 厚紙のシルエットを( 20 字以上 35 字以下 )。
- (e) その結果、プレーリードッグの鳴き声は、( 10 字以上 20 字以下 )ことが判った。
- (f) 追加実験の結果、四角形に対しては、( 10 字以上 20 字以下 )ことも判明した。



2 The following is a transcript of an interview between Bill Moyers, an American journalist and political commentator, and David Suzuki, a Canadian environmental activist. Read the transcript and answer all the questions that follow in English.

**MOYERS:** We get so many reports of what we're doing to our air, our soil and our water. But [ A ], is the diagnosis lethal?

**SUZUKI:** I don't think anyone can say at what point it will be lethal to us as a species. I like to say that in Canada not long ago, Cape Breton coal miners took canaries in the coal mine. When the canary keeled over, they didn't say, "Hey, Jack, come on over here. This bird just fell over. What do you think? Do you think it's. . ."

They hauled their backsides out of there as fast as they could go. Birds, especially canaries, are super sensitive to **hydrogen sulfide\***, and sour gas. So, they give you an early warning.

Well, canaries have been falling all around the planet for decades now. Plants and animals that no longer are able to survive on the planet in the conditions that we've created. And what have we done? We've ignored this. We've always said, "Oh, well, there's plenty more where that came from."

There aren't plenty more where that came from. And now our own children have become the canaries. One out of five children in Canada will now have **asthma\***. When you and I were boys, asthma was a rare disease.

**MOYERS:** And that's as recent as the 1930's, right?

**SUZUKI:** Exactly. Exactly. So, our own children are now telling us we're doing something fundamentally wrong.

And all you have to do is every time you have a smog alert, go down to the emergency room in the hospital, and sit there for a day. You will see emergency rooms jammed with people in deep **respiratory distress\***.

Well, you don't have to be a genius to say, "Maybe it's got something to do with what we're taking into our lungs." And the point of the sacred balance that I did was to say, "Look, people, we can't continue to act as if air is something out there. And we are here. And we manage our interaction with the air."

"We are the air."  
(B) At our ages, I reckon we've taken about 350 million breaths. We've taken one to four liters of air, breathed it deep into our bodies, and fused to the air, and filtered whatever was in that air into our bodies. The idea that we use air as a toxic dump, and somehow it goes away and doesn't affect us is absurd.

**MOYERS:** Or water.

**SUZUKI:** Or water. We are over 60 percent water by weight. We're just a big ball of... blob of water, with enough organic thickener added so we don't **dribble\*** away on the floor.

**MOYERS:** That is interesting. You're changing the metaphor. You're saying that air, water, soil, are not outside of us. They are us.

**SUZUKI:** We are made of those things. And this isn't rocket science. This is ancient, ancient understanding.

I apologize to my aboriginal friends when I talk about this. Because I am a **Johnny-come-lately\***. They all look at me, and go, "Where the heck have you been? It's taken you a long time to figure this out."

**MOYERS:** [ C ], "Oh, no, here we go again. Back to that kind of romantic idea of human beings living in the Garden of Eden, in an innocence that just doesn't apply in this 21st century world."

**SUZUKI:** The whole problem with modernity today is that we think anything new is good. Anything that's old is bad. You know? So, even old timers like us have to get those old guys out of the way, so the young, hot-shots can come in there.

**MOYERS:** The fact of the matter is you and I are living longer because of modern technology. I had heart trouble nine years ago. And I've had a productive nine years, whereas 100 years ago, [ D ]...

**SUZUKI:** Absolutely.

**MOYERS:** ...at 60.

**SUZUKI:** Absolutely.

**MOYERS:** So, there's a tradeoff...

**SUZUKI:** Oh, of course. There have been huge, huge advances. I mean, what are we doing right now? We're sitting in a studio.

And this miracle of modern television, global telecommunications, computers, we can't imagine existing without it. I would hope that with all of this so-called technological progress, there would be enormous benefits. And there have been. But I think it's important to put it all into perspective.

We have to put it into a perspective of whether human beings are now so intelligent that we've escaped the physical, biological constraints of the planet. I think most people today believe that, that we're somehow special, and different. Again, to refer back to what aboriginal people tell us is that the Earth is our mother.

Now people immediately think a Mother Earth, you know, that's a metaphor. That's a poetic way of speaking. They mean it literally. And I, as a scientist, have come to understand that they are absolutely right in the most profound scientific way. . .

**MOYERS:** [ F ]?

**SUZUKI:** We are created out of the most important elements of the planet.

People don't even understand that every bit of our food was once alive. We take another creature, plant, animal, microorganism, tear it apart in our mouths. And incorporate those molecules into our own bodies. We are the Earth in the most profound way.

And we are fire. Because every bit of the energy in our bodies that we need to move, and grow and reproduce is sunlight. Sunlight captured by plants, converted into chemical energy that we consume and store in our bodies. So, when they speak about the Earth as our mother, and the four sacred elements: Earth, air, fire and water, they mean it literally. And they are right.

(NOW on PBS: Science and Health: Bill Moyers Interviews David Suzuki. August 29, 2003.

Retrieved from <http://www.pbs.org/now/science/humanimpact.html>)

- \*注 hydrogen sulfide: a colorless poisonous gas with a smell of rotten eggs  
asthma: a medical condition that causes difficulty in breathing  
respiratory distress: severe difficulty in breathing  
dribble: to fall slowly in drops  
Johnny-come-lately: a newcomer or late starter

(1) Fill in the blanks [ A ], [ C ], [ D ] and [ F ] with one of the following options. Write the letter for the correct sentence on the answer sheet.

- (a) I would probably have died
- (b) Can I say that
- (c) I can hear people in the audience saying
- (d) I ask you as a scientist
- (e) How so

- (2) Put the following underlined words in (a) and (b) in the correct order to make the sentence synonymous with the underlined sentence (B) in the text.

We (a) [our bodies/ times / in / by / breathing / maintain / millions of] our lifetimes.

When (b) [deep / is / any / take / into / in the air / breath, / substance / we / filtered / a]  
our bodies.

- (3) Explain in your own words what the underlined word (E) stands for. Write your answer in the form of sentence in English.

- 3 The following two stories (A) and (B) describe top athletes' leadership displayed on their teams. Choose one of the stories and write a one paragraph English essay of about 200 words following the directions below.

**Directions**

- (a) Explain whether you think what the athlete did was appropriate or not. In doing so, (1) include positive and negative aspects of the athlete's decisions and acts, and (2) describe what you think you would do in the same situation if you were the athlete.
- (b) In the spaces provided on the answer sheet, write "A" or "B" (the story you have chosen) in the parentheses at the beginning, and your total essay word count at the end.
- (c) Do not itemize (1) and (2) above separately.

(A) A story about handball player, Jérôme Fernandez

Two days before the final of the 2009 World Championship, Jérôme Fernandez, the newly named captain of the French national handball team, got some terrible news. His father was dying of cancer and had only a few days to live. A lot of athletes play through difficult situations, but this case was unusually agonizing. Fernandez had to choose between saying goodbye to his father and not skipping one of the biggest matches of his career. He decided to stay and play, but that wasn't all. Worried that the news might trouble his teammates, he did not tell them.

In the final against Croatia, France wasn't favored to win, but Fernandez played brilliantly, scoring the determining goal in the final minute. Only then did he collapse in tears on the court. Once his teammates found out about his father, they couldn't understand how he had been able to play at all.

Fernandez made it home to see his father before he died. Over the next six years, under his leadership, France became the greatest dynasty in the history of international handball. Like other outstanding captains, Fernandez possessed both selflessness and incredible emotional courage. He was able to block out negative feelings while continuing to perform at the top of his game.

(B) A story about Soviet ice hockey player, Valeri Vasiliev

In the winter of 1980, as a Soviet-built passenger plane roared over the Atlantic, the 20 members of the Red Army hockey team slumped in their seats. They had just lost to the Americans in a legendary Olympic upset that was soon called the "Miracle on Ice."

The Soviet coach, Viktor Tikhonov, had told his players not to point fingers. The story

they would tell in Moscow is that they had lost as a team. On the plane, however, Tikhonov got together privately with his assistants and began criticizing individual players for their failures.

Valeri Vasiliev, a veteran defenseman, overheard this critique. He flew into a rage. He rushed over, grabbed Tikhonov by the neck and threatened to throw him off the plane if he didn't take it back.

Vasiliev wasn't punished for his outburst and returned to practice with the rest of the team. He didn't hold Tikhonov's words against him and never mentioned the incident publicly. Several months later, when his teammates elected him captain, Tikhonov and the **Kremlin**\* let the decision stand.

With Vasiliev as captain, the Soviet team became unstoppable, posting a record of 94 wins, 4 losses and 9 ties in international competitions over the next four seasons and winning three World Championships and an Olympic title.

Vasiliev didn't hesitate to let his coach know when he disagreed with him. But his resistance wasn't personal. He understood that conflict, when focused on supporting his team's goals, is not destructive. It's essential.

(Sam Walker, 2017, *Wall Street Journal*)

\*注：Kremlin クレムリン。モスクワにある宮殿。旧ソビエト連邦時代は連邦政府を指す語として使用された。