

〔 I 〕 以下の英文を読み、問に答えなさい。

The fact that humans evolved as both plant and meat eaters means we're going to continue to have feedlots and slaughterhouses to get meat, so the question is: what should a humane feedlot and slaughterhouse be like? Everyone concerned with animal welfare has the basic answer to that: the animal shouldn't suffer. He should feel as little pain as possible, and he should die as quickly as possible.

But although the principle is obvious, putting it into operation isn't so easy, because it's hard to know how much pain an animal feels. It's hard to know how much pain a person feels when you get right down to it, but at least a person can tell you in plain language that he feels horrible. An animal can't do that.

The problem isn't just that animals don't talk. Animals also hide their pain. In the wild any animal who's injured is likely to be finished off by a predator, so animals probably evolved a natural tendency to act as if [ア]. Small, vulnerable prey animals like sheep, goats, and antelope are especially stoic, whereas predator animals can be big babies. Cats can yowl their heads off when they get hurt, and dogs scream bloody murder if you happen to step on their paws. That's probably because cats and dogs don't have to worry about getting killed and eaten, so [イ].

Prey animals can be incredibly uncomplaining. A few years ago my student Jennifer and I saw a bunch of bulls being castrated. The veterinarian* was using a rubber band procedure, wrapping a tight band around the bull's testicles and leaving it there for several days. That sounds horrible, but veterinarians use it because it's less traumatic than surgery, although there are individual differences in how cattle react to it. Some bulls act perfectly normal, while others repeatedly stamp their feet. I interpret foot stamping as a sign of discomfort but not overwhelming pain.

A few bulls, though, act as if [ウ]. They lie down on the ground in strange, contorted positions and they moan—but they do this only when they're [エ]. When we were at the lot, one of the bulls was having a bad pain reaction, and when Jennifer walked up to his pen he jumped (i) his feet and greeted her as if nothing was wrong. The other bulls, who didn't seem to be especially bothered by the procedure, didn't change their behavior one way or another. When they thought they were [オ] — I was watching them from inside the scale house* so they couldn't see me—they didn't act any different.

Sheep are the ultimate stoics. I once observed a sheep who'd just had excruciating bone surgery. I would have had no way of knowing how much pain that animal was (ii)

based on the way she was acting, and ³⁾a hungry wolf would have had no reason to pick her out of a flock. An injured animal in terrible pain will actually eat food — ⁴⁾something all our theories of stress tell us shouldn't happen. Physiologically, bad injuries and pain are severe forms of stress, and severe stress normally diverts bodily resources away (iii) eating and reproduction. I warn vets about this all the time: there's no way to know how much pain an animal feels when you're right there in the room with him. [力]

Predator animals like dogs are less likely to mask their pain, but even they do it to some degree. Pain masking may be why a lot of vets will neuter* a female dog and send her home without any painkiller. Any human who's ever had abdominal surgery will tell you it's agonizingly painful, but vets say that dogs sure don't act like they're feeling anywhere near as bad as a human does. We don't know whether they're masking their pain or whether they just don't feel as much pain as we do in the first place. Either way it's a problem, because animals need some pain to keep them quiet so they can recover. If dogs do mask surgical pain it's especially dangerous, because a dog won't spend any time alone ⁵⁾ if he can help it. A lot of vets will tell you they don't like to give pain medication because they want your dog to have enough pain to slow him down for a while. That's not a concern you'll ever hear from a doctor who operates on humans.

A friend of mine found this out the hard way. She had a young female Labrador who was used to playing with three other young dogs. You put four very young dogs together, and you've got some wild and woolly play, which is what went on every day in my friend's backyard. The Labrador had her surgery in the afternoon, then went home the same night. She was groggy and out of it, but the first thing she did when she got home was jump up on the sofa at the end of her owners' bed and from there up onto the bed. No human being five hours out of abdominal surgery will jump onto a couch, *ever*. That's something you just don't see.

So my friend and her husband gave the Lab doggie tranquilizers* for a couple of days to keep her quiet, but she still played so vigorously with the other dogs that she didn't heal properly. Instead of developing a thin red scar* where the incision* had been made, the surgical wound kept getting wider, turning into a concave area of shiny, moist tissue.

Unfortunately, my friend didn't know what the wound was supposed to look like and didn't realize until almost too late that it wasn't healing right. She was inspecting the wound every day to see if it looked infected, and while it didn't look good to her, the incision didn't look infected, either. She was getting more and more worried, but she thought she was just being an anxious owner.

Finally she got so worried she took her dog back to the vet. He took one look at the

dog's belly and told my friend that if she hadn't come in that day her dog's intestines would have been "lying on the floor" by nighttime. There was no infection, but the skin tissue was completely broken down, and there was only a thin veneer of it left holding the viscera* inside. My friend was horrified. You can see why vets worry about too little pain instead of too much. That Lab could have died from a routine spaying* procedure all because she wasn't showing any pain, so she didn't slow down her social life with the other dogs for even one day.

(“ANIMALS IN TRANSLATION” by Temple Grandin and Catherine Johnson より一部改変)

注 veterinarian* : 獣医
scale house* : 監視小屋
neuter* : 去勢する
tranquilizers* : 鎮静剤
scar* : 傷跡
incision* : 切開
viscera* : 内臓
spaying* : 卵巣切除の

問1 [ア] ～ [ウ] に入る文章を次の中から選び、[ア] はマークシートの [1] に、[イ] は [2] に、[ウ] は [3] にマークしなさい。

1. nothing's wrong
2. they're in agony
3. they can make all the noise they want
4. they can't voice any sounds because of the pain

問2 [エ] と [オ] には a で始まる同一の単語が入ります。解答用紙に記入しなさい。

問3 (i) ～ (iii) に入る前置詞を次の中から選び、(i) はマークシートの [4] に、(ii) は [5] に、(iii) は [6] にマークしなさい。

1. at 2. from 3. in 4. to

問4 下線部 3)と同じ内容になるものを次の中から選び、マークシートの[7]にマークしなさい。

1. a hungry wolf would eat the sheep
2. a hungry wolf would pick the sheep
3. a hungry wolf never intended to eat any of the sheep
4. a hungry wolf wouldn't purposefully choose the sheep
5. a hungry wolf would be encouraged by other wolves to choose the sheep

問5 下線部 4)の具体例を日本語8字以内で解答用紙に記入しなさい。

問6 [カ]に入る文を次の中から選び、マークシートの[8]にマークしなさい。

1. Animals mask pain.
2. Animals make ugly faces.
3. This is because we too are animals.
4. Animals can't cry because of the pain.
5. We scientists, however, can measure the pain.

問7 下線部 5)の意味を日本語10字以内で解答用紙に記入しなさい。

問8 次のA, Bについて、1～4の中から適切なものを選び、本文の内容と一致するように文章を完成させなさい。Aはマークシートの[9]に、Bは[10]にマークしなさい。

A:

The Labrador that just came back from her surgery

1. lost consciousness from the pain.
2. was very cheerful and was not willing to play.
3. was nervous because of the pain, and kept away from company.
4. moved around vigorously although she was unable to behave normally.

B:

The Lab's owner

1. was sure that the incision was getting better and was not seriously infected.
2. took her dog back to the veterinarian just before the dog became critically injured.
3. gave the dog incorrect medicine, as she was not well-informed about the use of drugs.
4. was worried that the wound wasn't healing, but knew that there were actually no problems.

〔Ⅱ〕以下の英文を読み、問に答えなさい。

Regardless of whether we are experts or amateurs, even those of us with otherwise perfect vision are ¹⁾subject to fleeting but nonetheless startling kinds of blindness. One of the most fascinating forms is known as change blindness. It occurs when we fail to detect major changes to the scenes we are viewing during a brief visual disruption—even so brief as a blink.

The profound impact of change blindness was demonstrated a decade ago in an ²⁾impish experiment by Daniel Simons and Daniel Levin, both of them at the time at Cornell University. The design of their experiment was simple: they had “strangers” on a college campus ask pedestrians for directions. As you might suspect, the experiment involved a twist. As the stranger and the pedestrian talk, the experimenters arranged for them to be rudely interrupted by two men who pass between them while carrying a door. The interruption is brief—lasting just one second. But during that one second, something important happens. One of the men carrying the door trades places with ³⁾the “stranger.” When the door is gone, the pedestrian is confronted with a different person, who continues the conversation as if nothing had happened. Would the pedestrians notice that they were talking to someone new? In most cases, it turns out, the answer was no. Only seven of the fifteen pedestrians reported noticing the change.

At this point, you may find it tempting to think, “I would have noticed a change like that.” And maybe ⁴⁾you would have. But consider this: you’ve probably seen countless similar changes and never noticed them. Where? In the movies. Movie scenes, as many people know, are not filmed sequentially; instead, they are shot in a different order from how they appear in the film, usually months or even years apart. This process often results in embarrassing mistakes known in the trade as continuity errors.

Continuity errors have long bedeviled the motion picture industry. The Hollywood epic *Ben-Hur* is a good example. The 1959 movie, which ⁵⁾starred the late Charlton Heston as Ben-Hur, won eleven Academy Awards—more than any other movie up to that point in history, including one for Best Picture. But it still has its share of errors, especially in the famous chariot scene, which lasts for eleven minutes but took three months to film. During the chariot race, Messala damages Ben-Hur’s chariot with his saw-toothed wheel hubs. But at the end of the race, if you’ll look closely, you’ll see that Ben-Hur’s chariot appears—undamaged! There’s also ⁶⁾a mix-up in the number of chariots. The race begins with nine chariots. During the race, six crash. That should leave three chariots at the end of the race. Instead, there are four.

Hollywood employs experts who are supposed to catch these things. Officially, they are known as continuity editors or script supervisors, though they are more commonly referred to as script girls because the role, traditionally, has been filled by women. But even they can't catch all the mistakes.

"It's not humanly possible," says Claire Hewitt, who has supervised scripts on a variety of movies, from documentaries and short films to full-length features and even kung-fu action flicks. The best you can do in any given scene, she says, is to try to spot the most important things. But even that is easier said than done.

One of Hewitt's more memorable lapses occurred in her second film as a script supervisor, a short film about a man and a woman who live next door to each other in an apartment building. Instead of filming the actors in separate rooms, though, the filmmakers cheated: they used the same room to film both actors. This required redecorating the room to make it appear in the various scenes to belong to either the man or the woman, but it saved on location costs.

The error occurs in a key scene of the movie, when the woman finally meets the man. "You see her leaning against the door, listening to whether he's out in the hall, and she comes out," says Hewitt. "But the door opens the wrong way!"

Hewitt never noticed the error on her own; it was instead brought to her attention by her mother's boyfriend. "People love doing that—⁷⁾catching you out," says Hewitt. Indeed, entire Web sites are devoted to pointing out continuity errors. (One of the more popular ones is the British Web site moviemistakes.com, run by Jon Sandys, who has been cataloging movie flubs since he was seventeen.) But Hewitt's experience with her mother's boyfriend carries an important lesson: errors that are obvious to others can be invisible to us, [ア].

Okay, you might say, it's easy enough to miss changes to minor details like which way a door opens. Who cares? But what about changes to bigger, more important things?

That's what Levin and Simons wanted to find out. So they shot their own movie. This time, they didn't just change the scenery; they changed the actors. During each film, [イ]. For example, in one film an actor walked through an empty classroom and began to sit in a chair. The camera then changed, or cut to a closer view, and a different actor completed the action. The films were shown to forty students. Only a third of them noticed the change.

(“Why We Make Mistakes” by Joseph Hallinan より)

問1 下線部1)の意味と最も近いものを次の中から選び、マークシートの[11]にマークしなさい。

1. affected by
2. damaged by
3. dependent upon
4. injured by
5. required to obey

問2 この文脈において、下線部2)の意味にもっとも近い単語を次の中から選び、マークシートの[12]にマークしなさい。

1. awful
2. extravagant
3. playful
4. ridiculous
5. simple

問3 下線部3)はどのような人物か。文脈に即して最もふさわしいものを次の中から選び、マークシートの[13]にマークしなさい。

1. a person who was not accepted into the college
2. a person who is truly lost and is asking for directions
3. a person who visited the college campus for the first time
4. a colleague of the experimenters who assists them with their experiment
5. a colleague of the pedestrians, who will exchange places with one of the men carrying the door

問4 下線部4)の意味する内容を、10字以内の日本語で解答用紙に記入しなさい。

問5 下線部5)の日本語訳を、30字以内で解答用紙に記入しなさい。ただし、Charlton Heston、Ben-Hur は、それぞれチャールトン・ヘストン、ベン・ハー と表記すること。

問6 下線部6)の意味する内容を、20字以内の日本語で具体的に説明し、解答用紙に記入しなさい。

問7 下線部7)の意味を次の中から選び、マークシートの[14]にマークしなさい。

1. 人を訴えること
2. 人を排除すること
3. 人を首にすること
4. 人の失敗を許すこと
5. 人の間違いを暴くこと

問8 [ア]に入る最も適切な文を次の中から選び、マークシートの[15]にマークしなさい。

1. when they are very trivial
2. although we discuss them seriously
3. no matter how hard we try to spot them
4. because they are relatively minor details
5. since we as experts have knowledge not available to the public

問9 [イ]に入る英文を、次の単語を用いて作り、解答用紙に記入しなさい。単語はそれぞれ一度しか使えません。また、使わない単語も含まれています。

actor added amateur another by one replaced to was

〔Ⅲ〕 次の英文を読み、以下の間に答えなさい。

Roulette is played at a table with a wheel and a betting area. The wheel rotates around a vertical axis and is located in a shallow bowl with a wall curved toward the inside. The wheel and the bowl are so designed that a small ball can be spun on the inside of the wall, without flying outside, and such that after several rotations the ball finally drops into one of the pockets. The pockets are numbered and are painted so that red and black alternate. Gambling historians disagree about the origins of the game. According to some, Blaise Pascal invented roulette in 1655 during his monastic retreat. [ア] A third suggestion is that roulette originated in an old Chinese game the object of which was to arrange thirty-seven statuettes of animals into a magic square. According to this account, the statuettes were eventually transformed into the numbers 0 to 36 and arranged haphazardly along the rim of a revolving wheel by French Dominican monks. (The only consistent theme in these three suggestions is the monastic setting!)

Roulette wheels differ in their construction. In most North American casinos they have two “zeros”: 0 and 00. [イ] Because many bets are automatically lost if the result of a spin is 0 or 00, the game is substantially more favorable for the player when the wheel has only a single zero. Roulette bets are made by placing chips (or occasionally currency) in certain parts of the betting area. Essentially, bets differ only in the number of numbers that are covered in the bet. The simplest (though perhaps not the wisest) bet, for example, is on a single number—say, 32. If the ball lands on 32 the player wins, and the bank pays odds of [1] to 1. This corresponds to a probability of $1/36$. Unfortunately for the gambler; however, there are either 37 or 38 numbers on the wheel (depending on where in the world he or she is playing) , so the correct odds for a fair game would be either 36 to 1 or 37 to 1. The presence of the 0 gives the bank a small but distinct advantage; the presence of both 0 and 00 confers an even greater advantage on the casino. We can assign numerical values to this advantage very simply. Imagine, for example, a roulette wheel in a North American casino; the wheel has a 0 and a 00. When you place a one-dollar bet on the single number, the probabilities of winning and losing are

$$\text{Probability of a win} = \frac{1}{38}$$

$$\text{Probability of a loss} = \frac{37}{38}$$

If the ball lands in your chosen number, you win thirty-five dollars, so the expected return on one dollar is

$$\left[\frac{1}{38} \right] \times 35 - 1 \times \frac{37}{38} = -\frac{2}{38}$$

Thus the expected return on 100 dollars is about -5.26 dollars, where the negative sign, of course, indicates a loss to the player. The casino's advantage is about 5.3%. With a single zero, the bank has an edge of about $\left[\frac{1}{37} \right]$ %. The expected return would be zero (indicating a fair game) only if the odds for a single number on a wheel with 0 and 00 were $\left[\frac{35}{37} \right]$ to 1, and on a wheel with only 0 were $\left[\frac{36}{37} \right]$ to 1, rather than the 35-to-1 odds actually given. (A player could, of course, put his or her single-number bet on 0 or 00 if available and would then win if ball fell in the chosen value—the same negative expectation of gain, however, would still apply.) Clearly, casino operators have learned that you can't give players an even break, because in the long run they would break even! "Never give a sucker an even break," as somebody once eloquently remarked.

$\left[\frac{1}{37} \right]$ In the Biarritz System, for example, a player must, before placing any stakes, note the results of at least 111 spins of the wheel. Then having noted what numbers have come up with less than a certain frequency, the player bets on those numbers, the implicit assumption being that their former rarity will be offset by an immediate glut. It is a manifestation of the Gambler's Fallacy*. $\left[\frac{1}{37} \right]$ All similar systems are flawed for the same reason. Furthermore, the advantage that the presence of 0 and (perhaps) 00 confers on the bank will, in the long run, break all players. The best way to avoid losing at roulette is to stop playing the game!

(“CHANCE RULES” by Brian Everitt より一部改変)

注 Fallacy* : 自己欺瞞、考え違い

問1 [ア] ～ [エ] に入る適切な文章を次の中から選び、マークシートの [16] ～ [19] にそれぞれマークしなさい。

1. In Europe and South America, however, most wheels have only one zero.
2. Others claim it was invented by a French monk to help relieve the monotony of monastery life.
3. Over the years, numerous “systems” have been developed for making roulette a successful enterprise for the player rather than the casino.
4. If such a system *were* successful, it would simply mean that the casino should consider buying its roulette wheels from another manufacturer.

問2 [1] ～ [5] に入る数を次の中から選び、マークシートの [20] ～ [24] にそれぞれマークしなさい。

- | | | | | |
|-------|-------|-------|-------|------|
| 1. -2 | 2. -1 | 3. 0 | 4. 1 | 5. 2 |
| 6. 35 | 7. 36 | 8. 37 | 9. 38 | |

問3 [i] に入る数字を解答用紙に記入しなさい。答えは小数点以下2桁目を四捨五入しなさい。