

2020-Nov. A Revised Edition

Where is the mind?

A hard trick set by the brain

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On a revised edition

About one year has passed since the paper, "Where is the mind?", was up-loaded on the internet. I have received some comments about it. Some of them are, "The conclusion of the paper is impossible." Other are, "I cannot agree with the thought that the world which is seen before my eyes is not the material world, but at the same time I have come to feel doubts against my thought about the mind." In addition, I received points that "The explanation is not easy to understand".

The last paper was written about ten years ago, and some parts of it are a little out of date. So, I wished to make efforts in the explanation and rewrote it newly. It is uncertain how much it is improved, but I wish it would be.

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Foreword

Have you ever heard of the question "Where is the mind?", which might seem to be meaningless to you. Perhaps, most of you would not have heard of it.

You may have a strange impression to the question, but you will not think about it attentively. You will think, "We cannot indicate where the mind is, because it is different from matter, and too abstract and vague". It must be a common view about the mind.

It is natural that you do not have a clear idea about the place where the mind exists, because the mind is certainly different from matter. However, if you are asked, "Does the mind not exist?", you will answer, "Yes, it exists". The question would seem to be absurd to you, but it surely touches the core of the true feature of the mind.

The word "microcosm" is often used to express the mystery and the depth of some phenomena,

and it is used about the mind as well, such as "the mind is an unknown microcosm" or "the mind is an inner microcosm". As known from these expressions, the mind is assumed to have a vast expanse. Certainly, we assume the mind has a vast expanse, but we think it to be so abstract as to look in a dark well or as to hold clouds in the sky. The concept "unconsciousness", which was originated in J. Freud, shows the circumstances clearly.

The mind surely has vague and abstract parts shown by such words as "intellect", "emotion" and "volition", but it is not composed only of them. The world stretching out in front of us is also the world of our mind.

Please suppose that you are in a room. When you look around, you will see a desk in front of you, a bookshelf and walls at your sides, a ceiling above your head, a floor under your feet, and your body in this side. They all are not existences in the material world but psychological phenomena in the world of your mind.

Of course, I am telling it to you based on the assumption that there exist a room constructed by concrete and lumber, furniture made of wood, and your physical body in the material world. Based on the assumption, I am telling you that the world which is seen before your eyes is not the material world but the apparent material world, so to speak, and the objects which are seen before your eyes are not real objects but apparent objects. In addition, even your body which is seen before your eyes is not your physical body existing in the material world but an apparent physical body existing in the world of your mind. All of them belong to the world of your mind.

You would think that the view is impossible and is more absurd than the question "Where is the mind?" However, what has been told to you now is true. The mind consists of not only abstract elements such as intellect, emotion and volition, but also of concrete elements such as a desk, a bookshelf, a wall, a ceiling, a floor and your body, which you can see and touch. The mind surely has a vast expanse, and it is suitable for the word "microcosm".

Some philosophers already noticed the true feature of the mind hundreds of years ago, and the mystery of the mind seems to have been motivating them to study it eagerly. However, they do not seem to have been conducting an educational campaign to explain it for the people whose specialty is not philosophy. Or, they might have been doing, but unfortunately it must have been ineffective, because the true feature of the mind has not yet been known to us today.

There are some tricks set by the brain which make us believe that the world is seen before our eyes is the material world, and because of the tricks, it is exceedingly difficult to realize the true feature of the mind.

The modern natural science started in the 17th century, and it has been developing greatly up to now. There is a view that the development of science is partly due to Descartes who separated matter from spirit. Namely, it is said that scientists have been able to engage in the study of only physical phenomena since then. Though, it has become taboo to study mind and consciousness in the field of natural science because it seemed impossible to study them in science.

As the research on the brain has advanced, the number of scientists who study the mind from the standpoint of science has been gradually increasing. However, the scientists' view about the mind has been the same as that of common knowledge, and it is not correct. If they are going to study the mind, it is necessary to dismantle the common knowledge about the mind and newly restructure it.

The common knowledge about the mind is not correct, and as a natural result, there are many contradictions in itself. If we carefully examine it, there appear some strange phenomena which cannot be explained by common knowledge.

The first step to dismantle the common knowledge about the mind is to clarify the contradictions which are being accepted as a matter of course. If we notice the contradictions lurking in the common knowledge, we will feel some doubts against them, and the doubts will motivate us to study the contradictions. Through the process of the inquiry, we will be able to clarify the real feature of the mind.

The purpose of this paper

The purpose of this paper is to plainly explain the true feature of the mind, which is sometimes described as a "microcosm", from the standpoint of not philosophy but science. Therefore, this paper is based on the assumption that the material world exists first of all, and the subject will be pursued based on it.

Any preliminary knowledge is unnecessary for you at all. All that is required to you is to be ready to accept the results which will be led by a logical process, without being caught by any preconception. There are some hints for seeing through the tricks in our daily activities, for example, "I am looking

at a coffee cup".

This paper is not light reading. It expects you to challenge hard tricks set by the brain. Therefore, it might ask you a little patience to keep reading. But please do not worry. It is arranged so that you will be able to understand the real feature of the mind by only tracing the story.

This paper does not contain anything religious or moral. However, if you come to understand the true feature of the mind, your outlook on the world and your view of life would change in no small way. You would realize that each human being has the world of mind whose expanse is infinite. As a result, you would come to realize the dignity of each human being once again and have respect for all of them.

I hope so.

Chapter 1: It is difficult to feel some doubt to common knowledge.

Paragraph 1 The true feature of the mind

From the Ptolemaic theory to the Copernican theory

It is said that modern natural science was established from the 16th century to the 17th century. The people in those days believed in the Ptolemaic theory which insisted that the sun and stars went around the earth once a day. They also believed that the earth was flat and the end of the world was a vertical cliff. Sailors who were going to sail on a long cruise are said to have been afraid of it.

Though, early on, there was a view that the earth was a globe as well as the moon because ships gradually appeared on the horizon. It is well known that in the 3rd century B.C., Eratosthenes calculated the circumference of the earth by measuring the height of the sun at the two cities in Egypt at the same time, based on the hypothesis that the earth was a globe, and the result was very accurate.

It was the middle of the 16th century that Copernicus put forward the heliocentric theory. His theory that the earth moves around the sun was jeered by the people at that time, and what was worse, his idea was thought to be dangerous because it violated the doctrine of Christianity, and his books were banned. It is said that it was only two persons, Galileo and Kepler, who supported the heliocentric theory at that time.

On the other hand, the geocentric theory is said to have been advocated by Ptolemy in the 2nd

century. His theory that the sun goes around the earth and the earth is immovable meets our common knowledge even today. It seems natural that the geocentric theory has been believed in for a long time.

Even today, the circumstance seems to be the same with those days. Even if we believe in the Ptolemaic theory it would not cause any inconvenience in our daily life. It might be rather more convenient to believe in the Ptolemaic theory than the Copernican theory in our daily life because the sun seems to come up in the east, move westward and go down in the west.

However, if we want to understand the laws of the cosmos correctly, the Ptolemaic theory is not acceptable, because it cannot explain the movement of planets though it can do that of fixed stars. They could not help taking the idea of "epicycle" to compensate for the contradictions caused by the movement of planets. As a result, the theory became to be complex.

The Ptolemaic theory causes another contradiction concerning the velocity of stars. Namely, the sun goes around the earth once a day. The Copernican theory can explain the phenomenon by using the velocity of 460m/s, which is the earth's rotation velocity at the equator. However, according to the Ptolemaic theory, the sun must move around the earth near the velocity of light. Furthermore, the fixed stars far away from the earth must move much faster than light to go around the earth in a day.

It was necessary and indispensable to shift from the Ptolemaic theory to the Copernican theory to understand various laws about the cosmos without contradiction.

Common knowledge is not always correct, but it seems to be correct only under limited conditions.

Approach to the mind from science

It is said that the brain is the last frontier left in science. In biology and physiology, scientists have been studying the brain eagerly as well as the analysis of the genetic information about DNA whose structure was clarified by J. Watson and F. Click.

The micro-electrode method, which made it possible to observe the activity of nerve cells by inserting a micro-electrode needle into the brain, has greatly contributed to developing the study of the brain. For example, a series of the researches on the visual cortex of cats, which was pursued by D. Hubel and T. Wiesel, clarified many new facts about the information processing at the visual

cortex, and it fundamentally corrected the view about the visual information processing which had been thought to be correct so far.

The micro-electrode method has been restricted only to the animals' brain because of its ethical problem. However, MRI, which was put into practical use in 1980's, made it possible to observe the activity of the human brain in real time. By using it, the dynamic connections among the visual area, the auditory area, the memory area, and the apperception territory, etc., have been clarifying.

As the research on the human brain has advanced, as a natural result, the study on the relationship between the brain and the mind has started, though it was thought to be impossible for science until then.

Pioneering works in this field are seen in such books as "The mystery of the brain" written by W. Penfield and "The mind exceeds the brain" written by J. Eccles, who were physiologists. As the title of these books shows, they wrote these books from the standpoint of dualism, and they insisted that it was difficult for science to study the mind.

On the other hand, R. Penrose, a Nobel Prize winner in physics, has been eagerly engaging in studying this field since the end of the 20th century.

He has been discussing the mind from quantum mechanics on such books as "Emperor's new mind" and "Can it be talked about the mind by the quantum?" While there are a lot of criticisms against his idea because it is still at a level of hypothesis, there are some favorable evaluations to his thought as well.

Science and Philosophy

Until now, only philosophy has engaged in the study of the mind. Judging from the specialty, psychology also seems to have been studying the mind. It was certainly true when it was once one field of philosophy. However, after it became independent from philosophy in the early 20th century and became one field of science, it has not been studying the mind itself but only the function of the mind, because the mind was assumed to be unable to study scientifically. It has become taboo for psychologists to study the mind itself since then.

On the interpretation of the mind, there is a wide gap between scientists who are newcomers to this field, and philosophers who are pioneers in this field. The interpretation about the mind by scientists

is almost the same as that of common knowledge. On the contrary, the interpretation by philosophers is quite different from that of common knowledge. When scientists hear philosophers' view about the mind, they feel lost, or they are apt to ignore it as nonsense, as it often occurs when both views are quite different from each other.

The difference between their interpretations is epitomized in how they interpret the world which is stretching out in front of us, in other words, the world which is seen before our eyes. Most scientists interpret it as the material world, but on the contrary, some philosophers, though not every philosopher, interpret it as the world of mind, in other words, as the apparent material world. It is said that when scientists and philosophers discuss about the mind, there is always a deep gap between their views and it is never narrowed.

In these days, there certainly appeared a few scientists who interpret the world which is seen before our eyes as the apparent material world, but almost all scientists still keep interpreting it as the material world.

The view that psychologists have about the world which is seen before our eyes seems to be nearer to that of philosophers, because their specialty is the mind. It was certainly true when psychology was once one field of philosophy. However, as mentioned above, since psychology became independent from philosophy, psychologists have been studying the mind from the standpoint of natural science. Their view is, therefore, the same as that of scientists.

Physiology has obtained a great deal of knowledge about the brain through years of study. Psychology has also accumulated a large amount of knowledge about the function of the mind through a lot of researches. However, it seems to me that philosophy exceeds science in the understanding of the true feature of the mind, though it might be only my opinion.

In fact, we can know part of the superiority of philosophy over science from the motivation of philosophers who start the study on the mind. Scientists, in most cases, start the research on the brain and the mind by being interested in the complicated system of the brain, which is said to be composed of about 15 billion or 30 billion nerve cells, and in the skillfulness of the information processing. As they start their study under common knowledge, therefore, their view about the mind is the same as that of common knowledge.

On the contrary, some philosophers start their study by noticing the contradictions caused by

interpreting the world which is seen before our eyes as the material world. For example, "Color is a psychological phenomenon. If the objects which are seen before our eyes are matter, why do we see color at the surface of the objects?" From the beginning, they have already noticed part of the real feature of the mind which is different from that of common knowledge.

The difference between scientists and philosophers concerning the view about the mind appears in the interpretation on the world which is seen before our eyes, as already mentioned. Therefore, let's start the story from their interpretation on the mind, the body and the external world. The first is the interpretation of scientists, which is the same as that of common knowledge, and the second is that of philosophers.

(1) Interpretation about the mind, the body and the external world by scientists

We live in a vast external world that surrounds us, being aware of the mind and the body which are obviously different from the external world. We roughly know "where the mind is", "where our body is" and "where the external world is". We also know the borderlines which divide the mind, the body and the external world without feeling any doubt, even though we don't know a clear definition about them based on science or philosophy.

Mind

At the start, let's think about the mind. The meaning of the word "mind" is so ambiguous, but "where the mind is" would be able to be paraphrased as "where self-consciousness exists" expediently. And we would also be able to associate the concept "self-consciousness" with a series of psychological activities expressed by such words as intellect, emotion and volition. Namely, we usually think that intellect, emotion and volition are the typical activities of the mind.

For example, it is our intellect that we solve math problems, it is our emotion that we feel elegant by seeing beautiful flowers, and it is our volition that we decide to buy a motorcycle. We regard all of them as the activities of our mind.

Intellect, emotion and volition are certainly the activities of our mind. They are all abstract, and we can neither see nor touch them. If the mind is composed only of them, the mind is surely abstract. However, if we are asked, "Does not the mind exist?", we will answer, "Yes, it does exist." It is clear

that the modality of the existence of the mind is quite different from that of matter, but the mind surely exists.

Now, let's think about the question: "Where do we think the mind is?" Please pay attention to the meaning of the word "where" in this question. It does not mean "Where in the brain is the mind created?" It is a simple and ordinary meaning, namely, "Where in our body do we think the mind is located?"

Please imagine you are in the following situation: You are standing on a little hill by the sea, and are having a good time, receiving a pleasant breeze of the early spring. You are thinking of the question "Where is my mind located?"

It would be convenient for you to close your eyes in order to think of it. When you close your eyes, the external world, which has been filled with color till now, is cut off by your eyelids, and it changes into a gray, monotonous tone. However, it is possible for you to know the external world which surrounds you by the sound of the waves, the smell of the sea, and the sea breeze, etc. You can also know the outline of your face by the integration of the following parts of your face; your eyes by the movement of the eye balls, your nose by the smell of the sea, and your mouth by the faint movement of your lips.

When you are asked the question "Where is the mind located?" in such a situation, most of you would answer; "It seems to be located behind my face", which you cannot see for yourself directly.

It is certainly difficult to define the location of the mind because it does not have shape and appearance. However, if the mind is assumed to be composed of intellect, emotion and volition, it would be natural to think that our mind is located behind our face, as common knowledge shows. There would be, at least, no person who thinks it exists at the tip of our fingers, or in the blue sky, though they might be used metaphorically in some poetry.

What was mentioned above is the interpretation about the location of the mind as common knowledge, and most scientists would also have the same view. If it is examined carefully, a lot of problems will be found, but, let's stop examining it now and continue the story.

Body

The body is different from the mind, and it is easy to indicate the position. You can see your feet

which are firmly standing on a little hill by the sea, your hands which are holding up to shut out the sunray to your eyes, and your chest and belly. On the other hand, you cannot directly see your face and your back without using a mirror, but you can know the existence of these parts by the information from sense organs which are at the surface of your body. In addition, you can also know the inside of your body by the activities such as eating, digestion, excretion, breathing and heart beats.

The mind and the body have a close relationship with each other. The mind receives the information about the external world through sense organs, and it works on the external world by using effectors.

The body which is equipped with sense organs and effectors might be said to have a role of mediation which connects the mind and the external world. R. Dawkins, a famous biologist, said, "A living being is a vehicle of DNA." If we imitate his expression, we would be able to say, "The body is a vehicle of the mind."

According to common knowledge, the mind is composed of intellect, emotion and volition which are not matter, but the body is surely composed of materials (matter) as well as the external world. However, the body greatly differs from the external world, which will be referred to next, because the body is always accompanied by "the thought of my body".

External world

Our body is only about 80 liters in volume at most, but the external world widely stretches out around us. Please imagine again that you are standing on a little hill by the sea and looking around you.

Receiving a gentle breeze of the early spring at your face, you turn your eyes far away. Then, you will see the horizon which curves very slightly and divides the sky from the sea. Under the sunlight of the early spring, the ocean is deep ultramarine. The sea is flat at the offing, but when you turn your eyes to this side, it shows gradual undulation, and at the beach it shows white wave crests.

The color of the sky is misty light blue which is peculiar to spring. In the middle of the sky, a jet plane which reflects silver light is flying stretching a long vapor trail. It would remind you of the cosmos which is said to have 13 billion light years' extent.

It is a steep, sandy slope from your feet to the beach. Coast plants living at sandy soil stretch their roots deeply, and they are blooming small and yellow flowers. On the beach, an old man is playing

with a little child, who seems to be his grandchild, by using a beach ball.

This is the external world, and all objects which belong to the scene are matter. The external world is vast like this.

You might object to the view about the position of the mind, but you would agree the scientists' view about the mind, the body and the external world, which is the same as that of common knowledge.

(2) Interpretation of the mind, the body and the external world by some philosophers

As mentioned at the previous clause, if we are based on the view of scientists, we can clearly distinguish the three regions, the mind, the body and the external world. We, except some philosophers and a few scientists, have been accepting the view without feeling any doubts.

In fact, we are living every day based on the interpretation of the common knowledge, and we never experience any inconvenience. For example, when you are going to play with the child and the old man on the beach, there is no contradiction in a series of your behaviors. There is your will to play with them, there are the movements of your body based on your will, and there is a steep, sandy slope in the external world. Your will, your behavior and the external world are harmonizing with each other.

However, it is wrong to settle the boundaries among the mind, the body and the external world as the common knowledge shows. They are only apparent boundaries, so to speak.

Saying from the conclusion, some philosophers have been insisting, though not every philosopher, that your body and the external world which are seen before your eyes belong to the world of your mind.

The material world surely exists: the sea which is composed of water, sodium and chloride, the air which is composed of nitrogen of about 80% and oxygen of 20%, the sand which is composed of quartz and feldspar, and the condensation trail which is composed of small drops of water. They are all matter and follow the laws of nature.

On the other hand, your physical body which is composed of various organs surely exists in the material world: bones which is the core of the body, muscles and tendons constructed on the bone

structure, blood vessels which are the path for blood that transports nutrient to cells and collects waste materials from cells, sensory nerves which transmit signals from sense organs to the center, motor nerves which transmit orders from the center to muscles, and digestive organs, cardiopulmonary organs, etc. Your physical body which is composed of such organs surely exists in the material world.

However, the world which is seen before your eyes is not the material world but the apparent material world. The light blue sky, the dark blue sea, and the breeze which is carrying smell of the sea are not phenomena in the material world but in the apparent material world. The old man who is waving his hand toward you and the child who has begun to run toward you are not the persons in the material world but apparent persons in the apparent material world.

The world which is seen before your eyes and contains all of them is not the material world but the apparent material world, in other words, the world of your mind. In addition, your body which you see before your eyes and can move by your will is not your physical body itself but an apparent physical body.

The boundaries which seem to divide the body from the external world, and the mind from the body, are only apparent boundaries. The external world and your body which are seen before your eyes, and of course your mind are phenomena in the world of your mind.

If another person is there, the person will also see almost the same view as yours. However, the world which is seen before your eyes is the original world which is seen by only you and is the phenomenon of just your mind. A relaxed feeling in your mind which is produced by touching a calm spectacle of the early spring is a phenomenon in your mind, and similarly, the world which is seen before your eyes is also a phenomenon which has been created in your mind.

What was mentioned above is the philosophers' interpretation about the external world, the body and the mind. You must have thought it to be absurd. You would not be able to believe such a vast world is being created in your mind. Certainly, it would be almost unbelievable that such a vast space exists inside the brain of which capacity is only 1.5 liters at most. However, the brain has vast space at the level of molecules and atoms. There might be some system which creates such a world in the brain, though we do not know the mechanism at present.

The reason why some philosophers have reached such a conclusion, which is also the conclusion of this paper, will be explained in detail in the following chapters.

A hard trick

Some philosophers have known since early times that the true feature of the mind is quite different from that of common knowledge. They would have been campaigning to tell it to us up to now, but it seems to have been ineffective, because it has not been known to us today.

It is very difficult to disprove the common knowledge about the mind, the body and the external world, because we are convinced without any doubts that the world and the body which are seen before our eyes are the material world and our physical body respectively. The reason why we have such a wrong view is because our brain constructs the apparent external world including our apparent physical body in the world of our mind, and the constructed world and the body completely synchronizes with the external world and our physical body.

Therefore, any inconvenience is not caused even if we behave by assuming that our body and the world which are seen before our eyes are the physical body and the material world respectively.

The world of mind created by the brain is cheating even us. It ought to be called, as it were, a hard trick set by brain.

Policy of this paper

You might have thought that the story of this paper is based on idealism, because such words as "the apparent material world" and "an apparent physical body" were used. However, it is not idealism. This paper is based on the assumption that there exists the material world whether or not such living beings with consciousness as human beings exist, and the story is going to be pursued based on the assumption.

The tricks set by the brain are very hard. It is impossible to solve all the tricks at once. Even the philosophers, who know the true feature of the mind, seem to have been in the same condition as us at the first stage of the study. First of all, they would have felt some doubts to the common knowledge that the world which is seen before their eyes was the material world, and after long consideration, they would have been able to come to the conclusion that it was not the material world but the

apparent material world.

If we carefully observe the world which is seen before our eyes, we will be able to find some contradictions which are lurking in it, even though it is constructed so artfully. Using them as clues, we can see through the tricks and will be able to clear up the misunderstanding about the mind. The story will begin with the explanation that the world which is seen before our eyes is different from the material world.

There exist some hurdles on the way to the answer of the question: "Where is the mind?" One of them, for example, is if we can notice that the objects which are seen before our eyes are not matter but apparent matter. Another hurdle is if we can understand that our body which is seen before our eyes is not the physical body but an apparent physical body.

You might have doubts to whether this paper is based on scientific facts or not, because the story seems to be quite different from common knowledge. Please don't worry. As already mentioned, this paper is based on the assumption that the material world exists, and the story will be logically pursued. Please pay attention to the policy of this paper and trace the story.

Chapter 1

Paragraph 2 Doubt is an entrance to inquiry

Doubt is an entrance to inquiry

It was 1953 when J. Watson and F. Click discovered that DNA was the double-helix structure. Before their discovery, there were two important findings, which were the photographs of the X-ray diffraction about DNA taken by M. Wilkins, and the data about the base composition of DNA analyzed by E. Chargaff. From the photographs, it was forecasted that DNA was a helical structure, and from the data about DNA, it was known that the amount of thymine and adenine, and that of guanine and cytosine, were equal respectively, which are four bases of DNA.

It was a mystery why the amount of thymine and adenine, and that of guanine and cytosine, were equal. J. Watson paid attention to the fact, and found that adenine and thymine, guanine and cytosine, orderly unite with each other, if the hydrogen bonding was taken into consideration. In addition to

it, by F. Click's theoretical verification, DNA turned out to be the double-helix structure, and the mechanism of heredity was clarified.

As for famous discoveries in history, researchers would have wondered and felt some doubts when facing the subjects. Though, even in a trifling matter in a daily life, a feeling of doubt motivates us to consider it. For example, we feel doubt when we see a long line at a street corner, and the feeling of doubt motivates us to inquiry and to ask a person in the line "What is this line for?"

In any case, a will of inquiring doesn't arise when a feeling of wonder or a feeling of doubt do not exist. From now on, we are going to reveal the true feature of the world of mind. If we don't feel any doubt about the interpretation of "the mind, the body and the external world" as common knowledge, we would not come to have any will of inquiry.

Since we have been accustomed to the interpretation as common knowledge for a long time, it would be very difficult for us to feel some doubts about it. Whether we can understand the true feature of the world of mind depends on whether we can feel some doubts about the interpretation as common knowledge.

Easiness in feeling some doubts

When we come across a phenomenon and are not able to explain it by the knowledge we have, we feel some doubts about it and come to have a will to inquire into it. The easiness in feeling some doubts differs according to the type of phenomena. Though the easiness in feeling some doubts is not always proportional to the one in understanding the phenomena, let's think about the easiness, or the difficulty, by classifying some phenomena into the following four levels.

Level 1: Phenomena that we easily feel some doubt

The first are the phenomena that we feel some doubt as soon as we see them without being pointed out by someone.

Solar eclipse

A solar eclipse is a good example of level 1. As you know, when the sun, the moon and the earth form a line and the sun is interrupted by the moon, a solar eclipse occurs. They line up in order of

the sun, the moon and the earth every day because the moon goes around the earth once a day. However, a solar eclipse does not occur so frequently because the lunar orbit is inclined to that of the earth.

A total solar eclipse that the sun entirely hides behind the moon is very rare, and it is only observed for a very short time in a very limited area. When it occurs, it changes the daytime into the dimness like the evening.

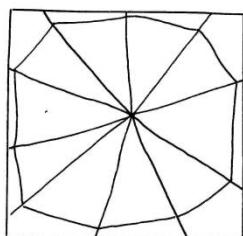
The mystique is well understood from the fact that a lot of people visit to the place without regretting time and expense even if it occurs in a far foreign country. It fascinates many people even in today when the reason is well known. In ancient times when the reason was unknown, it seems to be natural for the people to have thought it as an ominous phenomenon and the end of the world.

Level 2: Phenomena that we immediately feel some doubt when being pointed out by someone

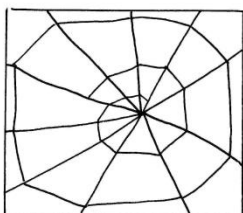
The second are phenomena that we don't feel any doubt by ourselves, but we can notice the strangeness when being pointed out by someone.

Fig. 1-1

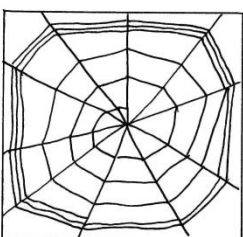
Cobweb



A cobweb is a suitable example for Level 2. Spiders spin cobwebs by using sticky threads and capture insects. They seem not to be liked by people because of their appearance of manipulating long and slender eight feet eerily.



However, their artfulness of making cobwebs is wonderful. We marvel at their skill of extending threads between far apart points and their accuracy of stretching threads regularly and spirally. We are apt to conclude that it is their instinct. The demand to make cobwebs is certainly their instinct, but the technique to weave cobwebs is sure to be originated from their advanced intelligence.



What should be pointed out here is why spiders themselves are not caught by their own cobweb though they catch insects by sticky threads. Have you

ever had such a doubt?

We know cobwebs are sticky, but most of us do not notice the antinomy. However, we don't have any difficulty in understanding the strangeness which lurks in cobwebs if it is pointed out by someone.

There are six verrucae which are called spinneret at a spider's hip, and a lot of tubes for putting out threads connect to them. Those verrucae can put out several kinds of thread for different uses.

Figure 1.1 shows the process of weaving a cobweb. First, a spider makes an outer frame, and extends threads from center to every direction. Next, it puts threads spirally from the center to the outside. They are called scaffolding threads and are not sticky.

After these processes have finished, a spider goes along on scaffolding threads and densely weaves the weft, which are sticky, from the outside to the center. Surprisingly, some kinds of spider put the weft, removing the scaffolding threads.

It seems that there is not an established theory which can explain why spiders are not caught by their own cobweb. The following hypothesis is thought to be highly probable: Spiders go along on the radial frame threads and the scaffolding threads which are not sticky, and moreover, their soles are protected by some special oil secreted from their soles.

Level 3: Phenomena that we cannot immediately feel any doubt even if the strangeness is indicated by someone

The third are phenomena of which strangeness we don't notice by ourselves as well as the phenomena of level 2 and, in addition, we cannot easily understand the strangeness even if it is pointed out by someone.

Fall of objects

As an example of level 3, let's think about a fall of objects. It is said that I. Newton thought of the law of universal gravitation by seeing an apple fall from a tree. Apart from whether the episode is true or not, as it is a usual phenomenon that an apple falls downward, most people will not feel any doubt about it. Moreover, even if we are asked, "Why does an apple fall?", we would not feel any doubt. It is because there is a familiar reason to support our view; "An apple falls because it is heavy."

The reason fits with common knowledge, and it is not wrong. However, it doesn't clarify the question why objects fall as they are heavy. And it will lead us to a hypothesis that the heavier it is,

the faster it falls. If you have seen a stone and a feather falling at the same speed in a glass tube of which air is nearly evacuated, you would notice the hypothesis is questionable.

I. Newton advocated the theory of "gravitation" to explain a fall of objects. Not everything was solved by the concept of gravitation, but it is Newton's greatness that he noticed the strangeness of falling and had doubts about the phenomenon.

The phenomena of level 3 are familiar to us as well as that of level 2. However, we cannot easily understand the strangeness which lurks in the phenomena even if it is pointed by someone. It is because there is a reason as common knowledge to explain the phenomena, and it is not wrong though they cannot fully explain the phenomena.

Level 4: Phenomena which are being supported by a wrong reason

The phenomena of level 4 are much more troublesome than that of level 3. We cannot notice the strangeness of the phenomena even if it is shown by someone, because there is a reason which explains the phenomena as well as the case of level 3. However, the reason is only a subjective impression and is wrong, though that of level 3 is not wrong.

Juggleries are suitable examples for level 4. There are many kinds of juggleries and they are very popular among us. The trick of juggleries takes advantage of spectators' subjective impression which is wrong.

Judging from the fact that spectators feel some doubts as soon as they see a jugglery, it might seem not to be suitable for an example of level 4. However, it is a suitable example of level 4, because even if some hints are shown to us, it is difficult to see through the trick since a wrong reason covers the trick.

A card trick

A jugglery with cards which will be shown to you is rudimentary, but the trick used in it is very skillful. Figure 1.2 shows the procedure of the jugglery. Please see through the trick!

Fig.1-2

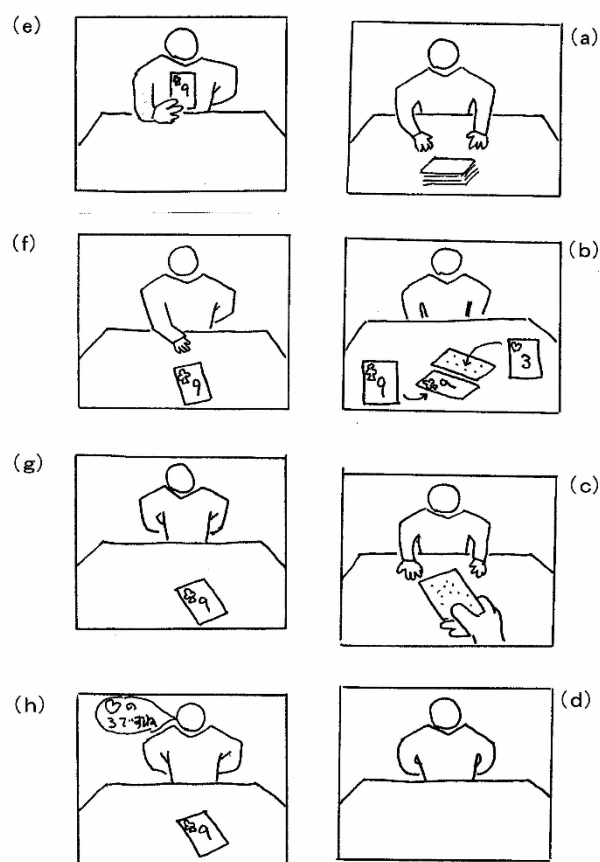


Figure 1.2(a): First, the juggler passes cards to you and tells you to choose one card that you want him to guess right. Next, he tells you to choose another card which is not cared, to pile these two cards face to face (the card which you want him to guess is upper), and to pass them to him.

Figure 1.2(b): You choose "the three of hearts" as the card which you want him to guess, and choose "the nine of clubs" as another card, and pile these two cards face to face.

Figure 1.2(c): You pass these cards to him.

Figure 1.2(d): He receives these cards and turns both hands behind his back and pretends as if he were examining them carefully.

Figure 1.2(e): After that, he shows you one card, which is not cared, with his right hand.

Figure 1.2(f): And, he makes sure, "It isn't this card, is it?", and throws it away on the table.

Figure 1.2(g): Then, he turns his right hand behind his back again, and pretends as if he were examining the other card with both hands.

Figure 1.2(h): After a while, he splendidly guesses, "It is the three of hearts," in a pompous attitude. In this jugglery, any works are not done to the cards, and any gimmicks such as a mirror are not used at all.

Judging from a series of processes in Figure 1.2, the card which you want the juggler to guess seems to be in his left hand turned behind his back all the time. Therefore, he seems to be able to catch a glimpse of the figure of the card only when he receives the cards. However, he doesn't seem to steal a glance at the figure when he receives the cards, no matter how many times he does juggling. In fact, he doesn't look at the figure at that moment.

As a matter of fact, there is one chance that he can see the figure of the card. Have you already seen through the trick? Please think of it for a while.

The trick is shown at P20. Please read the next clause after you check the trick.

It is difficult to have some doubts about common knowledge concerning the mind

The view about the mind, the body and the external world as common knowledge, which was told at paragraph 1 of Chapter 1, is the very case that belongs to level 4. We interpret the world which is seen before our eyes as the material world, the objects which are seen before our eyes as matter, and our body which is seen before our eyes as a physical body. It does not cause any inconvenience in our daily life even if we interpret them like that. Our view is being supported by various reasons as common knowledge.

For example, the objects which are seen before our eyes have characteristics such as weight and hardness which are thought to be those of matter, and our body which is seen before our eyes can be manipulated by our will. However, these reasons are wrong.

It is very difficult for us to notice these reasons to be wrong. It is just the same as the case of the jugglery with cards. Our view, "the card is being kept in the juggler's left hand turned behind his back", is only our subjective conviction, and it is very difficult to notice it is wrong.

Even though the view about the mind, the body and the external world as common knowledge seems to be not inconvenient superficially, it does not mean that there is not any contradiction in it. If we carefully examine the common knowledge that "the world which is seen before our eyes is the material world", we will be able to find out many contradictions in it. Though, even if they are indicated, it is not easy to realize why they are contradictions, because there are reasons as common knowledge to support them, and the reasons are too familiar for us to feel any doubt.

There are various mysterious phenomena in the world. A true strangeness might be lurking in the phenomena we don't feel any doubt.

Do you notice the strangeness?

The interpretation of "the world which is seen before our eyes" belongs to the phenomena of level 4. Whether you feel some doubts about the phenomena becomes the key point to realize the true feature of the mind.

A detailed analysis of the common knowledge about the mind are going to be done in the following

chapters, but at the beginning of the story, please think about the following questions and check by yourself whether you feel some doubts or not.

Question 1: Why do we see color at the surface of the objects which are seen before our eyes?

Almost all the people would not feel any doubt about the question. However, the physical characteristics of color is originally electromagnetic waves, on the other hand, color itself is a psychological phenomenon which is the result of the information processing by the brain. If the objects which are seen before our eyes are matter, why does color which is a psychological phenomenon belong to their surface?

Question 2: Why do we feel the smoothness at the tip of our finger?

When we rub the surface of a table with our finger, we feel the smoothness.

The surface of a table is certainly smooth. However, we will be able to feel the smoothness only after the signal from the tip of our finger is transmitted to the brain. Why does the sensation of the smoothness which is produced in our brain exist at the tip of our finger?

In addition, if we pay attention to the sensation of the smoothness a little more, we would notice that we feel it not at the tip of our finger but at the surface of the table.

Summary of this paragraph

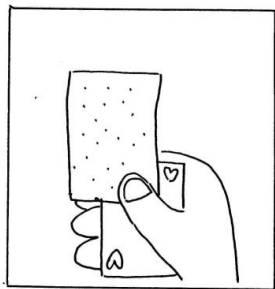
We will not come to have a will of inquiry when we do not have any doubts.

It is not easy for us to feel some doubts about the interpretation of the mind, the body and the external world as common knowledge, because specious logics are being prepared for it. Whether or not we feel some doubts about the common knowledge becomes the first key point to pursue the inquiry of the mind.

Revealing the trick

Let's reveal the trick. When the juggler showed you the unnecessary card in Figure 1.2(e), he did not have the other card, which you wanted him to guess, in his left hand turned behind his back. As shown in Figure 1.3, when he showed the unconcerned card to you, he had the other card in his right palm,

Fig. 1-3



and was looking at it secretly. It is the trick of this jugglery that the juggler behaves as if he were keeping the card in his left hand all the time.

Even if you are advised, "His left hand turned behind his back might be doubtful," you wouldn't feel any doubt. It is because there is a reason as common knowledge, namely, "The card is being kept by his left hand turned

behind his back." However, it is only a preconception, and is a wrong reason.

Chapter 2 Search for "the act of looking"

Paragraph 1 How to draw the two worlds

The policy of this paper, as mentioned at paragraph 1 of Chapter 1, consists of the following two points. One is that we accept the assumption that there is the material world whether any creature of having high intelligence such as human beings exist or not. The other is that we start our search from the reconsideration of the world which appears before our eyes when we open our eyes and disappears when close our eyes. It will become the starting point to understand that "the world which is seen before our eyes" is different from the material world.

If shown by a picture, various things become easy to understand. For example, if we have a map which shows the rout from the station to a friend's house, where we are going to visit for the first time, it will become easier to go there.

The words "the world which is seen before our eyes" and "the material world" have been used many times until now. It is very important to understand the true feature of these two worlds in order to pursue the story. If these two worlds are shown by pictures, it will become easier to understand their meaning. Therefore, at the beginning of the story, let's define two pictures which show the two worlds: "the world which is seen before our eyes" and "the material world."

You might feel some doubts against the proposal. You would think it strange and nonsense to define two pictures, because you think "the world which is seen before our eyes" must be "the material world". You would think that since "the world which is seen before our eyes" is "the material world",

we need not distinguish the two worlds, and furthermore, we cannot distinguish them. You would think we only have to draw the scene which is seen before our eyes when we need to show "the world which is seen before our eyes" or "the material world".

It is certainly justifiable for you to have doubts against such a proposal from the standpoint of common knowledge. However, since we are going to start the story from showing that the world which is seen before our eyes is different from the material world, it is necessary to define two pictures showing the two worlds, which are distinguishable from each other or are to be distinguishable from each other.

A picture of showing "the world seen before our eyes"

Please look at the picture of Figure 2.1. Judging from the objects in the picture, you will know it shows a corner of a coffee shop. There is a table at this side of the view, and there are a coffee cup and a newspaper on it.

Fig. 2-1



If that is all, this picture must be ordinary and uninteresting. However, in addition to it, arms and knees, which seem to be parts of the person's body who is sitting at this table, are drawn in the picture. You will realize that it has been drawn from the position of the person's eyes, or through the person's eyes.

You might have got a strange impression to the picture, because arms and knees are drawn. Certainly, we seldom see such a picture as being drawn by the composition like this. However, such a composition must be most familiar to us, because it is thoroughly the same as the view which we see in our daily life. You would be able to understand it well if you assume you were the person of this picture.

The expression, "the world which is seen before our eyes", has been used many times until now. It is exactly the scene which is shown by the picture.

It is the world which stretches out in front of us.

It is the world which appears colorfully when we open our eyes.

It is the world which is continuously seen before our eyes even if we turn our eyes to another

direction.

It is the world which instantaneously disappears when we close our eyes.

It is the world which is peculiar to each of us and anyone else cannot see the same view.

By the way, such words as "we", "our" and "us" have been used concerning "the world which is seen before our eyes." However, considering that "the world which is seen before our eyes" is peculiar to each of us, we should use the words "the eyes of each of us", or "my eyes" or "your eyes" instead of "our eyes". Namely, they are "the world which is seen before the eyes of each of us", or "the world which is seen before my eyes" or "the world which is seen before your eyes", etc. However, the words such as "our eyes", "we" and "our" will be used from now on for convenience's sake. Please be mindful of it.

Let's define the world which is shown in the picture of Figure 2.1 as "the world which is seen before our eyes", or as "the world seen before our eyes", which appears before our eyes when we are looking at the external world. "The world seen before my eyes" and "the world seen before your eyes", etc., will also be used from now on. They are the same meaning as "the world seen before our eyes".

When we use a picture of showing "the world seen before our eyes", a comment, "the world seen before our eyes", will surely be written at the upper part of the picture as shown in Figure 2.1.

Leaving aside the discussion on whether "the world seen before our eyes" is the material world or the world of mind, there would not be any objection to the way of showing "the world seen before our eyes" by such a picture.

A picture of showing "the material world"

When we are going to draw a picture, it is necessary to decide "what to draw" and "how to draw". In the case of drawing "the world seen before our eyes", there is no other choice but the way which was shown in the preceding clause. Namely, on "what to draw", we draw various objects which are seen before our eyes, and on "how to draw", we draw them by the perspective.

On the contrary, it is not easy to draw the material world. The purpose of using a picture is, as mentioned previously, to make it easy to understand that "the world seen before our eyes" is different from "the material world". Therefore, it is important to draw the material world by a different way from "the way of showing the world seen before our eyes".

First of all, on "what to draw", it is the same as that of drawing "the world seen before our eyes". We only have to draw the objects which are seen before us as matter, though the meaning of the objects which are drawn in the picture is different from that of the objects drawn in the picture of "the world seen before our eyes". We will be able to understand the reason later.

Next, on "how to draw", it is necessary to take into consideration the following two points: "the angle of drawing" and "the style of drawing". In the case of "the world seen before our eyes", it is to be drawn based on the image which is obtained at the retinas of our eyes. Concerning "the angle of drawing", the picture is drawn from the position of our eyes, and concerning "the style of drawing", it is drawn by the perspective, because "the world seen before our eyes" is the scene obtained through a convex lens of our eyes.

Fig. 2-2(a)

The material world

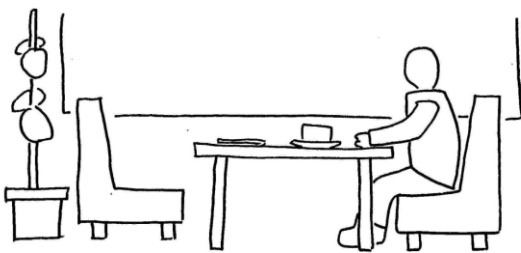


Fig. 2-2(b)

The material world

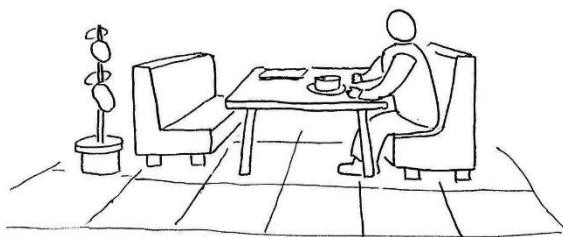
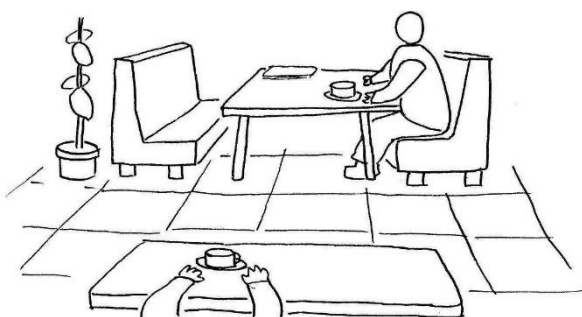


Fig. 2-2(c)

The material world



Therefore, in the case of drawing "the material world", it would be appropriate to draw a picture by a different angle from the position of our eyes (observer's eyes) and by a different style from the perspective, so that we can distinguish between the two pictures of showing the two worlds.

Figure 2.2(a) is a picture which shows "the material world" by a different way from that of "the world seen before our eyes". A person, a coffee cup and a table which was shown in Figure 2.1 are drawn from the side without using the perspective. It is just like a side view of a blueprint.

If we draw it by the perspective to make it have reality, it becomes a picture in Figure 2.2(b) which is drawn through the eyes of an observer who is looking at the scene. In fact, though an observer's body is not drawn in the picture of Figure 2.2(b), if the drawing point is pulled forward, parts of the observer's body appear in the picture, as shown in Figure 2.2(c).

When drawing "the material world", it is natural and inevitable that an observer who draws the picture takes part

in the act of drawing. Namely, an observer perceives the material world, and draws it. Therefore, it can be said that an observer is playing a role as a kind of filter, so to speak.

The picture of Figure 2.2(a) is drawn with the intention of excluding an observer's factor as much as possible, and it becomes like a blueprint. The words "the material world" will be written at the upper part of the pictures which show "the material world".

Such type of pictures as Figure. 2.2(a)~(c) will be used as necessary from now on.

Reason of being so careful about the way of drawing

You will wonder why we are so careful about the way of drawing the two worlds, especially the material world. It is because when explaining that "the world seen before our eyes" is different from "the material world", it is necessary to define two pictures which are to be distinguishable from each other, or, if it is impossible, it is necessary to define two pictures which are to show the two worlds.

It is very difficult to realize that the two worlds are different from each other. One of the reasons is that the pictures of showing the two worlds are drawn by a similar way. More particularly, there is not any problem about the way of drawing "the world seen before our eyes". The problem is that

there is no appropriate way of drawing "the material world."

You will think, "It is nonsense. It is natural that there is no way of drawing the two worlds differently because they are the same world." However, the very thought of you causes problems.

The reason is as follows. The picture of Figure 2.3(a) is just the same as that of Figure 2.2(a). The former shows "the material world", as defined in the preceding clause. It is drawn from the side. The coffee cup, the newspaper, and the table, including the person drawn in the picture, are all matter. If we pay attention to the person's eyes, we can also express the area enclosed by the two half-lines as "the world seen before his eyes" though it is the material world, because it is also the world which is stretching out in front of the

Fig. 2-3(a)

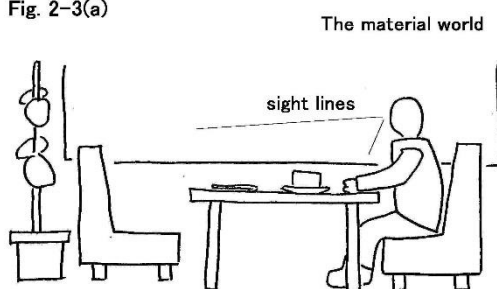
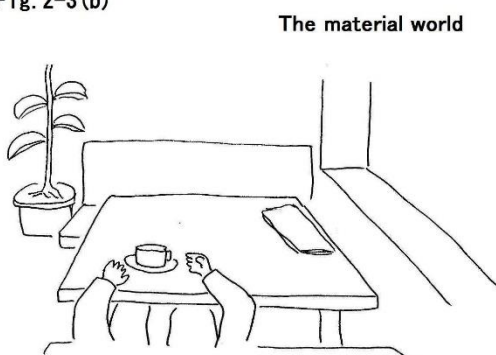


Fig. 2-3(b)



person's eyes. In a word, "the world seen before our eyes" can also be defined in "the material world", though the meaning is different from that of "the world seen before our eyes", and the word "seen" is inappropriate for being used in the picture of Figure 2.3(a).

Moreover, if we draw "the material world" from the position of the person's eyes in accordance with the perspective, then we obtain the picture of Figure 2.3(b). It is perfectly the same as that of Figure 2.1 which was defined as "the world seen before our eyes."

The picture of Figure 2.3(b) is the scene of the material world drawn from the position of the person's eyes in the material world, while that of Figure 2.1 is the scene obtained by the person's act of looking, that is, the information processing of the person's brain. The meanings of the two pictures are different mutually, and the meanings of "the world seen before our eyes" which are shown by the two pictures are also different from each other.

There are some causes to make us think that "the world seen before our eyes" is "the material world". One of them is that we assume the picture of Figure 2.3(b) is the same as that of Figure 2.1, and come to interpret the two worlds to be same. Certainly, the two pictures seem to be quite same at first glance, but what they mean is not same. If these two pictures are examined under a certain condition, it turns out that they are completely different from each other. In other words, it becomes clear that the two worlds which two pictures show are different from each other. It will be explained in Chapter 3.

From now on, such pictures as Figure 2.3(a), which looks like a blueprint, will be used to show "the material world". In addition to it, such pictures as Figure 2.3(b), which shows "the material world" from the position of a person's eyes by the perspective, will also be used. In such pictures, an explanatory note "the material world" will be written at the upper part of the picture so as not to be mistaken as that of "the world seen before our eyes".

When referring to "the world seen before our eyes" in the material world, which is the area enclosed by the two half-lines at Figure 2.3(a), a note, "the world seen before our eyes defined in the material world", will be written without fail so as not to be confused with "the world seen before our eyes" which was defined in Figure 2.1. Therefore, when expressed only as "the world seen before our eyes," please interpret it as "the world seen before our eyes" which was defined by using the picture of Figure 2.1.

When referring to the objects which exist in "the world seen before our eyes," the same expressions will be used: for example, "a coffee cup seen before our eyes", "a table seen before our eyes" and "a person seen before our eyes". Through such expressions, they will be distinguishable from "a coffee cup", "a table" and "a person" which exist in the material world and are matter.

The material world is so strange

You would not object to the view that there are two worlds, the material world and the world of mind, which are mutually different in their characteristics. In fact, these two worlds are very familiar to us. The material world exists around us, and the mind is always accompanying us.

If asked, "Which world is easier to express?" we would answer, "It is the material world. Since the world seen before our eyes is the material world, we only have to draw the scene stretching out in front of us, or explain it in words."

For example, if it is a downtown's street, we only have to draw the pavement with tiles of geometrical pattern, street trees with young leaves, passers-by in smart clothes, and the glittering of show windows which is reflecting the scenery. When children have grown up to around three years old, they come to draw pictures such as their parents, dogs, stuffed animals, houses and trees etc. The pictures in which they draw such objects are assumed to be copies of the material world.

On the contrary, we think it difficult to draw the world of mind or to explain it in words, because it is thought to be such an abstract world as being composed of intellect, emotion and volition. For example, J. Freud thought that the world of mind consisted of a three-layer structure of id, ego and superego. His idea is extremely ambiguous and abstract as if we were looking in a dark well.

However, the feature of the material world which modern physics shows is also quite strange. As you know by a science class of junior high school, matter is composed of atoms. There exists an atomic nucleus at the center of an atom, and electrons exist around it.

What should be paid attention to is that the diameter of an atomic nuclear is only $10^{-15} \sim 10^{-14}$ m though that of an atom is 10^{-10} m. If the size of an atom is compared to the National Stadium, that of an atomic nucleus is only a golf ball which is put on the center of the stadium. In a word, an atom is full of space, and as a result, matter must be full of space. Various cosmic rays are always pouring on the earth and on our body, but the probability they bump against the atoms which compose our body

is surprisingly low due to the space.

Considering the fact, when we draw the material world it seems to be necessary to draw a picture which is full of space instead of the picture of Figure 2.2(a). However, those who interpret "the world seen before our eyes" as "the material world" will insist: "It is not necessary to do so. We cannot see the micro-structure of materials because it is beyond the resolution of our eyes." In other words, what they insist would mean, "We cannot see it."

Considering that their insistence is based on the view that "the world seen before our eyes is the material world", it is a strange logic and is inconsistent with their view itself. This topic will be taken up again at paragraph 3 of Chapter 3 "We cannot see it?", because background knowledge is necessary to explain the reason why it is inconsistent with their view.

Summary of this paragraph

The two worlds which are shown by the two pictures, "the world seen before our eyes" and "the material world", are different with each other. The former is the world of mind, and the latter is the material world as the name suggests. Whether we can understand the difference between the two pictures will become the first hurdle to know the true feature of the mind.

Chapter 2

Paragraph 2 Three elements of "the act of looking"

Three elements of "the act of looking"

From now on, we are going to analyze "the act of looking at some objects", and it becomes necessary to define three words about "the act". They would be strange wordings to you, but if you would become accustomed to them it would be appreciated.

At first, let's name "our act of looking at some objects" "the act of looking" for short, which is part of the title of this paragraph. In daily life, we are doing "the act of looking" naturally. However, it does not mean only to know the existence of objects. Various areas in the brain are engaging in the information processing relating to the act of looking. We can know it from the wordings.

Namely, there are various meanings concerning the verb "look": "to look at a watch" means "to know the time", "to look at a map" means "to know the geographical features", "to look at a person's face" means "to know the person's psychological condition", "to look at a book" means "to know the content of the book", etc. It is said that about 30% of the cerebral neocortex relates to the processing of the visual information.

Let's define "the act of looking" as consisting of the following three elements. The first element is that there exist some objects, which is the target of the act of looking, in the material world. Let's name it "the object which we are looking," or "the object we are looking" for short. Naturally, it is matter.

For example, in the picture of the Figure 2.2(a) which shows the material world, the coffee cup, the newspaper, the table, and the person, etc., are all "the objects we are looking".

Please be careful that the following expressions will also be used as the same meaning: "the object(s) I am looking", "the object(s) you are looking", etc. You would think it is a little long, and a strange expression, but please become accustomed to the expressions.

The second element is that there exists our physical body, which is doing "the act of looking", in the material world. Let's name it "the body which is acting to look," or "the body acting to look" for short. The word "body" in this naming means a series of processes of the information processing which starts by receiving information from the external world at our eyes, and ends by producing a certain kind of physical or physiological condition at the cerebrum.

Even if "the body acting to look" doesn't exist, "the objects we are looking" certainly keep existing in the material world, but, as a matter of course, "the act of looking" does not occur. The act of looking is carried out only when "the body acting to look" exists which processes the information about the external world.

The third element is that a certain result is obtained by the act of looking. Let's name it "the result of the act of looking" or "the result of looking" for short. It is a difficult task to make clear what it means. The purpose of this paper is to explain what it means, and it will be made clear in the following chapters.

In short, "the result of looking" means an immaterial phenomenon which is different from the physiological or the physical condition of the cerebrum produced by the act of looking. For example,

though a general interpretation, it is as follows: the time we know by looking at a watch, geographical features we know by looking at a map, and people's feelings we know by looking at their face, etc. It is certainly a general interpretation, but they are surely "the result of looking".

When these three elements have become complete, the act of looking is realized: An object exists in the material world ("the object we are looking"). Visible light which reflects at the surface of the object reaches the retinas and is converted into electrical signals, and further, they are transmitted to the cerebrum and processed there ("the body acting to look"). After that, a certain result, which is different from the physiological or the physical phenomenon, is created ("the result of looking").

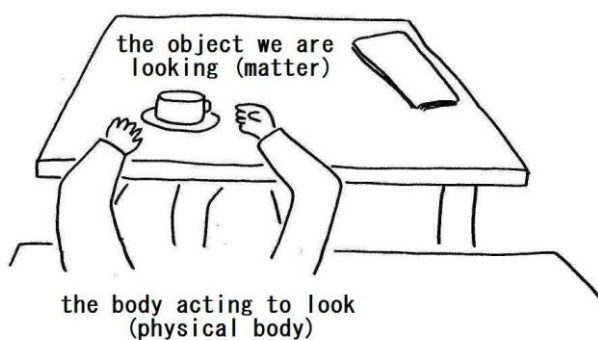
As mentioned previously, these three words are going to be used frequently from now on. Please become accustomed to them though it would be a little troublesome to you.

Three elements of the act of looking in "the material world"

Now, let's examine how these three elements are interpreted in the two worlds, that is, in "the material world" and in "the world seen before our eyes". The first is about the material world.

Fig. 2-4

The material world



The picture of Figure 2.4 shows the material world. Therefore, the table, the coffee cup, and the newspaper in the picture are all matter. In addition to them, the hands and the knees in the picture are parts of the person's body who is sitting at the table.

Let's look for the three elements concerning "the act of looking at a coffee cup" in the picture of Figure 2.4. For the person in this picture, "the object he is

looking" is the coffee cup, and "the body acting to look" is the person's body itself, though only parts of his body are drawn. It is very simple and clear.

Next, what is the third element, "the result of looking"? If the person were a humanoid robot, it would process the information of the external world by using a computer which connects to CCD cameras built into its eyes. And, if the computer gets the output of "a coffee cup" among some choices, it would become "the result of looking".

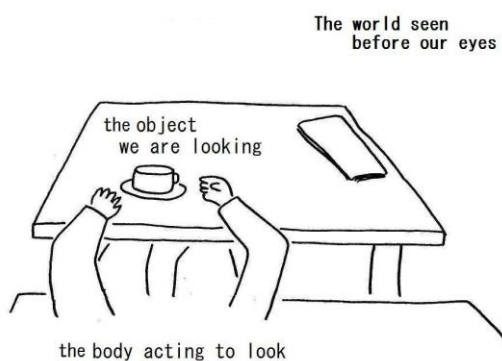
However, it is not so easy when the person is a human being. There must be various interpretations concerning "the result of looking". Though, there would probably not be objections to the view that in the case of human being, a phenomenon of being conscious will be created in the final stage of "the act of looking". For example, as known by the cases mentioned above, "the time" we know by looking at a watch, "geographical features" we know by looking at a map, and "people's feelings" we know by looking at their face, etc. They are "the result of looking" and the phenomena which we experience while we are conscious.

To the person in the picture, the shape and the color of the coffee cup are "the results of looking", and they are the phenomena of being conscious. It is unknown how consciousness is related to "the result of looking", but consciousness must be an event in the brain of the person drawn in the picture. Therefore, "the result of looking" never appears in the picture which shows the material world. It is natural, but we must pay attention to the fact.

Three elements of the act of looking in "the world seen before our eyes"

The pictures of both Figure 2.5(a) and (b) show "the world seen before our eyes." A table, a coffee cup, a newspaper, and a person's hands and knees are drawn in these pictures. These objects are the same as those of Figure 2.4, but the meaning of them is different from those of Figure 2.4 at all.

Fig. 2-5(a) General Interpretation



The picture of Figure 2.4 shows "the material world" and the objects are all matter. On the contrary, both pictures of Figure 2.5(a) and (b) show the scenes which have been seen by the person whose hands and knees are drawn in the picture. Namely, they are the scenes which are obtained through the person's eyes, in other words, they are the results which are obtained by the act of looking.

The interpretation of this paper about "the world seen before our eyes" is fundamentally different from the general interpretation as common knowledge. Therefore, let's examine the general interpretation by using Figure 2.5(a) and that of this paper by using Figure 2.5(b).

(1) The general interpretation about "the world seen before our eyes"

Let's examine the general interpretation which assumes "the world seen before our eyes" is "the material world". If you assume you were the person in Figure 2.5(a), you would be able to know the situation easily.

First, "the objects the person is looking" are the table, the coffee cup, and the newspaper, and naturally, they are interpreted as matter.

Second, "the body acting to look" is the person's body, though only hands and knees of his are drawn in the picture.

The story must be comprehensible so far, because since "the world seen before our eyes" is interpreted as "the material world", the story of the preceding clause has only been repeated. The difference from the picture of Figure 2.4 is only the position of the objects, because the drawing angle is different. You must think it is indescribably meaningless, but, please be patient for a while.

Third, what is "the result of looking" in the picture? As mentioned previously, under the general interpretation, "the result of looking" is thought to be, for example, "the time" we know by looking at a watch, "geographical features" we know by looking at a map, and "people's feelings" we know by looking at their face, etc. In a word, it is thought to be the knowledge about the objects, or vague images in our mind. Therefore, "the result of looking" never appears in Figure 2.5(a) as well as Figure 2.4, because the general interpretation is based on the standpoint that "the world seen before our eyes" is "the material world".

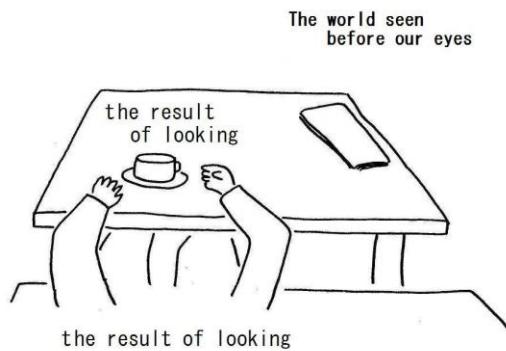
(2) The interpretation of this paper about "the world seen before our eyes"

The interpretation of this paper is completely different from the general interpretation. It does not interpret "the world seen before our eyes" as "the material world" but as "the world of mind". Therefore, every object seen before our eyes is interpreted as "the results of looking" which have been obtained by the act of looking. Please think about it by assuming you were the person in Figure 2.5(b).

For example, the coffee cup in Figure 2.5(b) is not "the object the person is looking" but "the result of looking. It is, so to speak, "an apparent coffee cup". In addition, the hands and the knees at this side of the picture are not parts of "the body acting to look" but "the results of looking", in other words, parts of "an apparent body", so to speak.

The feeling of relaxation which is brought by a cup of coffee is the phenomenon in the world of mind, and similarly, the coffee cup, the hands and the knees seen before the person's eyes are "the results of looking" which are obtained by the act of looking, and they are also the phenomena in the world of mind.

Fig. 2-5(b) Interpretation of this paper



Well, you must have felt some doubts against the interpretation of this paper: "Where are the objects we are looking?", and "Where is the person's physical body which is acting to look?" The answer to the doubts is that "They never appear in the picture of Figure 2.5(b), because both "the objects which the person is looking" and "the person's

body which is acting to look" are matter, but the world seen before the person's eyes is not the material world."

You might think, "It must be idealism", but it is not idealism. As mentioned at the paragraph 1 of Chapter 1, we have been pursuing the subject on the assumption that the material world exists. Even if we stand on the assumption, we reach the following conclusion; "The world seen before our eyes" is not "the material world" but "the world of mind".

Or, you might wonder: How can we see objects without "the objects we are looking" and "the body acting to look"? Both "the objects we are looking" and "the body acting to look" surely exist in the material world. They don't appear in Figure 2.5(b) which shows "the world seen before our eyes", just because they are matter. In fact, they exist in the picture of Figure 2.4 which shows "the material world".

The true feature of "the world seen before our eyes" is concealed by a hard trick, and it is not easy to see through the trick. Hereafter, the true feature of "the world seen before our eyes" will gradually be revealed by taking some steps forward.

Objects seen before our eyes" have dual meanings

There is a close relationship between the words which we use and the activities of the mind. We cannot make the state of our mind known to a person directly, and we cannot know that of a person's

mind directly, either. Therefore, we use words to express our mind or to know a person's mind. As a result, our wordings seem to be grasping the essence of the mind though we don't notice it. Namely, we interpret "the objects seen before our eyes" as "the objects we are looking" and at the same time interpret them as "the results of looking". We can know it by our wordings.

There are two types of verb concerning "the act of looking"; "look" and "see". We can know the difference of these verbs from the following sentence: "I am looking, but see nothing".

The verb "look" seems to show the activity of our physical body concerning "the act of looking", namely, it shows that we turn our eyes to an object and focus on it. For example, when we say, "I am looking at a coffee cup", it means that we turn our eyes to a coffee cup and focus on it. Therefore, in this case, "the coffee cup seen before our eyes" is interpreted as "the object we are looking".

On the contrary, the verb "see" seems to mean that a certain result about an object has been obtained as a result of "the act of looking", in other words, "I have obtained an image of the object." Therefore, it could be said that the verb "see" suggests that we interpret "the object seen before our eyes" as "the result of looking", because we can know the existence of a coffee cup only after the information about it has been processed in the brain.

For example, when we say "I see a coffee cup", it means that I have obtained an image of the coffee cup as a result of "the act of looking". It leads to the conclusion that "the coffee cup seen before our eyes" is interpreted as "the result of looking".

We casually use these two verbs "look" and "see", but it suggests that we interpret "the objects seen before our eyes" as "the objects we are looking" in some cases, and as "the results of looking" in other cases. Namely, "the objects seen before our eyes" have dual meanings. Our words seem to be sharply grasping the true feature of "the world seen before our eyes" though we do not notice it.

This topic is very important in order to clear our doubts about the interpretation of "the objects seen before our eyes" and will be taken up again later at paragraph 3 of Chapter 3.

Summary of this paragraph

The subject of this paper will be pursued based on the view that the act of looking consists of the following three elements: "the object we are looking", "the body acting to look" and "the result of looking". The first and second elements are matter, and the last one is not matter but a psychological

phenomenon.

From Chapter 3, we are going to use these three elements and two kinds of pictures, "the material world" and "the world seen before our eyes", in order to pursue the subject. Please be careful which element and which world is being dealt with.

Chapter 3 Reconsideration of the common knowledge about the mind

Paragraph 1 "The objects seen before our eyes" are matter?

"The objects seen before our eyes" are matter?

We live in the material world, being accompanied by mind and body which cannot be separated from each other. Please imagine that you are leaving your house for a familiar coffee shop on one Sunday afternoon. At a quiet residential area, you would see a familiar view, neighbor's houses, trees and roads. Since it is Sunday, you would meet some families who seem to be on the way to a department store.

As soon as you come to a main street, you would see many cars, and hear noisy sounds. When you open the door of a familiar coffee shop, a cowbell rings and the master would greet you, saying "Good afternoon!" Sitting at a table by a window, you order Blue Mountain coffee as usual. Taking out a sports paper from a newspaper rack, you look through the results of yesterday's high school baseball games.

We live in the material world like this, keeping the close relationship with our own body which cannot be separated from our mind. It is an undoubted fact.

We have pursued the subject up to now under the assumption that the material world exists. However, we must reconsider the following questions by all means: "The objects seen before our eyes are really matter?", "The world seen before our eyes is really the material world?", and "Our body seen before our eyes is really our physical body?" To reconsider these questions is the starting point to answer the question, "Where is the mind?"

The material world exists, and the houses, the trees, the main streets, the coffee shop and the newspaper which have been told now are all matter existing in the material world. The families, the

master, and you yourself also exist in the material world, keeping their own physical body. However, the houses, the trees, the streets, the coffee shop, the coffee cup and the newspaper which are seen before your eyes are not matter but apparent matter, so to speak. Moreover, the bodies of the families' member, the master, and you yourself which are seen before your eyes are not physical bodies but apparent bodies.

In daily life, we never feel any contradiction even if we interpret "the world seen before our eyes" as "the material world", and "our body seen before our eyes" as "our physical body". It would be the same kind of event as the following example, namely, even if we think that the sun rises above the horizon, moves to west and sets over the mountains, we don't feel any contradiction.

However, the purpose of this paper is to clarify the true feature of the mind. In order to achieve the purpose, it is necessary to understand that "the world seen before our eyes" is not "the material world" but "the apparent material world". It will lead us to the understanding of the true feature of the mind.

As the first step, it is necessary for us to feel some doubts against the common knowledge that "the objects seen before our eyes" are matter. If we do not feel any doubt, we do not come to have a will to pursue the subject.

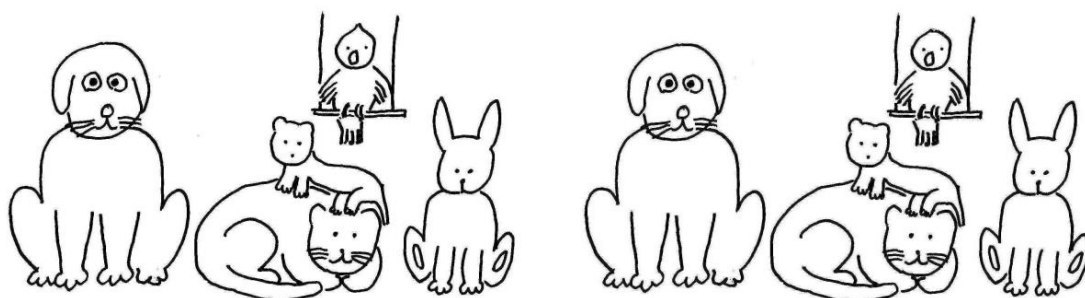
Now, let's show you some examples which cause some contradiction in themselves if we interpret "the objects seen before our eyes" as matter. If you come to feel some doubt, the first step will be cleared.

A puzzle of searching for differences

Figure 3.1 is an example of a puzzle of searching for the differences, as sometimes seen in some magazines. There are two pictures, an original one and a copy of it. In the copy, there are some differences from the original picture. The task is to find out the different parts.

Fig. 3-1(a)

(b)



The two pictures look alike very much, so it is a little hard to find out the different parts. Though, as it is a puzzle, there are certainly different parts in the copy. It would be a usual method to compare the two pictures by turns to find out the different parts. If the two pictures are the same, they will be sure to coincide on every point, and if there are different parts, they will differ at the points.

By comparing the two pictures which show "the material world" and "the world seen before our eyes", it will be clarified whether the two worlds are the same or not.

Physical characteristics of color

Color makes "the world seen before our eyes" vivid and exciting. We usually do not pay attention to the influence which color brings in a daily life, but we are sometimes surprised at the significance of color. For example, when we are watching an old monochrome film on TV, we don't feel odd. However, as soon as it changes into a commercial, we are surprised at the richness of the image which color brings. Or, we are strongly impressed by such scenes as green young leaves, a rainbow across the sky after a shower, and mountains having been dyed in red and yellow.

The physical characteristic of color is corresponding to the wavelength of light. Light is the electromagnetic wave whose wavelength is from 380 to 770 nm. The electromagnetic waves whose wavelength is shorter than that of light are called ultraviolet rays. On the other hand, the electromagnetic waves which have longer wavelength than light are called infrared rays.

Objects absorb specific wavelength light and reflect the other wavelength light. Objects have their peculiar color. It is due to the reflected light. For example, green plants absorb light ranging from about 440(violet) to 660 nm (red) , and reflect light of about 550 nm (green and yellow).

Each color has a relationship with the specific wavelength of light like this, but color itself does not belong to the material world. The colors of being expressed by "bright red like burning", "ultramarine blue like the deep ocean" and "light green like young leaves" do not exist anywhere in the material world. Color is a psychological phenomenon, and it is produced only after the information of the light is transmitted to the brain and processed there.

What should be noted is that the word "light" has a close relationship with color. In a word, we have the preconception that light has a characteristic of color, such as red light, blue light, and green light. However, light is electromagnetic wave, and does not have any direct relation with color. The

specificity of the word "lights" would be understandable if it is paraphrased such as red electromagnetic wave, blue electromagnetic wave, and green electromagnetic wave. Of course, electromagnetic wave is irrelevant to color. It never happens that "a red electromagnetic wave" travels in the material world.

A comparison of the two pictures on color

Fig. 3-2(a)

The material world



Please look at the three pictures of Figure 3.2. A coffee cup and a person who is watching the cup are drawn in each of them. The pictures of Figure 3.2(a) and (b) show "the material world", and the picture of Figure 3.2(c) shows "the world seen before the person's eyes".

The picture of Figure 3.2(a) is drawn from the side, but, on the other hand, that of Figure 3.2(b) is drawn by the same angle and perspective as that of Figure 3.2(c) so as to be able to compare the pictures easily.

Fig. 3-2(b)

The material world



It is color that we should pay attention in these pictures. As mentioned above, color is not a physical phenomenon but a psychological phenomenon. The coffee cup drawn in Figure 3.2(c) is colored in red, because "the world seen before our eyes" is colorful as we know. On the other hand, the coffee cups in Figure 3.2(a) and (b) are not colored, because color

does not belong to "the material world." If the coffee cup shown in Figure 3.2(c) is a cup as matter, it will coincide with the coffee cup in Figure 3.2(b). Do they coincide? No, they do not.

The coffee cup in "the world seen before the person's eyes" is colored, and the coffee cup in "the material world" is not colored. It means that the coffee cup seen before the person's eyes is not matter. Furthermore, it leads us to the conclusion that "the world seen before the person's eyes" where the coffee cup and the table are seen is not "the material world".

Fig. 3-2(c)



The same logic can apply to "the world seen before our eyes". Please assume you are the person in Figure 3.2(c), and think about the logic about color. The color of the coffee cup which is seen before your eyes must be red as well as the cup in the picture of Figure 3.2(c). It must be the evidence that the coffee cup seen before your eyes is not matter and the world seen before your eyes where the coffee cup exists is not

the material world.

By the way, only the coffee cup is colored in Figure 3.2(c), though all the objects in the picture should be colored. It is simply due to focusing on the coffee cup and to simplifying of painting.

Two kinds of opinions in reaction to the conclusion

Have you agreed with the view that "the coffee cup seen before our eyes is not a cup as matter" just by the explanation at the previous clause? Or, even if you have not agreed with it, have you felt some doubt about the common knowledge that the coffee cup seen before our eyes is a cup as matter? If you have come to feel some doubt, the first purpose of this paper has been achieved, though it is more desirable for me if you have agreed with it.

Though, even if you have felt some doubt, it would be not easy for you to come to agree with the conclusion because it is so far different from the common knowledge. You might have come to feel another doubt by having had some doubt about the common knowledge, or come to feel a vague doubt which doesn't sit right with you. However, it is possible to clear such your doubts and to get rid of your vague feeling by the explanations in the following paragraphs.

In a very real sense, most of you would not have felt any doubt against the common knowledge concerning the problem of "color". Far from having not felt any doubt, some of you might have had dissenting opinions to such an explanation, or you might have thought it to be absurd and childish.

At first, additional explanation will be shown to "those who have thought it to be completely wrong", and later, some comments will be made for "those who have come to feel another doubt by having felt doubt".

Additional explanation to the objection that "such an explanation is completely wrong"

Let's start the additional explanation by the style of dialogue. The standpoint that "the world seen before our eyes is the material world and the coffee cup seen before our eyes is matter" will be defined as "Objection". On the other hand, the standpoint that "the world seen before our eyes is not the material world and the coffee cup seen before our eyes is not matter", which is that of this paper, will be defined as "Answer".

Objection

Your logic is strange. To begin with, it is a problem that you define two worlds. The world seen before our eyes is the material world. Therefore, it is wrong and meaningless to conclude that the world seen before our eyes is different from the material world.

You say the world seen before our eyes is not the material world, because the two pictures which show the two worlds don't coincide with each other. If the world is not the material world as you say, where do you think the material world exists?

Answer

It is certainly natural that you rebut the conclusion. However, we are now reexamining the following problems: "Is the world seen before our eyes really the material world?", and "Is there no contradiction in interpreting it as the material world?"

In fact, there appear various contradictions if we think the world seen before our eyes as the material world. As an example, the problem of color was held up. As explained at "physical characteristics of color", you would not object to the view that colors such as "bright red like burning" and "ultramarine blue like the deep ocean" are psychological phenomena, and they are created by the activity of the brain.

Colors are seen at the surface of objects before our eyes. It must be the evidence that the world which is seen before our eyes is not the material world.

Objection

You insist that color does not exist in the material world. However, there is a phenomenon of flame reaction. Lithium shows red and copper shows green when burning. This must be the evidence that matter has the characteristic of color.

Answer:

It is not correct. Flame reaction doesn't have direct relation with the color. The electrons that compose the atom obtain the thermal energy by burning, and become an excited state, and move to outside electron orbit. However, the state is originally unstable, so electrons return to the original orbit which is low energy level. They emit the electromagnetic wave whose wavelength is peculiar to substances at that time.

It is the flame reaction. It is true that there is a relationship between the electromagnetic wavelength and color indirectly. However, color does not belong to electrons, nor to electromagnetic waves. Color is a psychological phenomenon, and it is created by the activity of the brain.

Objection

You admit that electromagnetic wave and color have not direct relationship but have indirect relationship. Let's assume color is created at the level of the brain. But it might be able to think that the colors are reflected to the objects which are seen before our eyes and color their surfaces.

Answer

Then, I ask you. Assuming that the world which is seen before our eyes is the material world, how can the colors, which are created by the activity of the brain, color the surface of the objects which are seen before our eyes? Even if we make efforts to image colors by shutting our eyes, we cannot image the vivid colors which color the surface of the objects. Colors are combined with the objects which are seen before our eyes.

Objection

There is an idea of "projection". When an object exists between a light source and a screen, the appearance will be projected on the screen. It can apply to the problem of color.

If an object which is put at the front of a light source is compared to a psychological phenomenon, the screen would be compared to the material world. Color does not exist at the surface of the objects, but the characteristic of color comes to appear at their surface by the mechanism of projection. In a word, a psychological phenomenon of color is projected to the material world, and even if the color can be perceived on the surface of the matter, contradiction is not caused.

Answer

Even if you use the concept of projection, you cannot clear the contradiction about color. If the appearance of color is applied to the process, "the external world \rightarrow input of stimulus \rightarrow sensation of color", your idea would change it into the following one: "the external world \rightarrow input of stimulus \rightarrow appearance of color \rightarrow projection of color to the external world."

The concept of projection would suggest that there is a certain relationship between the material world and the psychological phenomena. Then, what is the interaction which exists between the material world and the world of mind? You use the concept of projection without clarifying the mechanism, you have only evaded the contradiction. It is necessary for us to proceed the discussion by piling up the facts, not by telling hypothesis.

Objection

Well, I will change the aspect. I object to your insistence from the viewpoint that "We cannot see objects". Namely, if we close our eyes, we cannot see any objects. That is because the stimuli from the external world do not enter into our physical body by shutting our eyelids of the physical body. Therefore, the objects which are seen before our eyes are matter, and the world which extends before our eyes must be the material world.

Answer

It is certainly correct what you say. If we close our eyes, the information from the external world doesn't enter into our physical body. If you insist of it in relation to the phenomenon of the material world, what you say is correct anyway. The thought of "I cannot see objects" is a high hurdle that disturbs the understanding of the true feature of the world which is seen before our eyes.

It is necessary for getting through it to wait for the story of paragraph 2 of Chapter 3. The questions and objections about color will be clarified on the process.

Summary of the dialogue

"Answer" insists that "the objects seen before our eyes are not matter", by pointing out that "color is seen at the surface of the objects". On the other hand, "Objection" persists that the objects seen before our eyes are matter, by using the concept of "projection" in order to avoid the contradiction that color, a psychological phenomenon, is seen at the surface of objects.

We are sure that color belongs to the objects seen before our eyes and cannot be separated from the

objects. However, when we think that the objects seen before our eyes must be matter and that color is a psychological phenomenon created in the mind, we are apt to think that color can be separated from the objects seen before our eyes. The view seems to become stronger when color is replaced by words like red, etc.

What is "projection"?

Let's explain the concept of "projection" briefly. When we are looking up at clouds, we sometimes suppose them to be like something. For example, a cloud would be seen as a hamburger when we are hungry or as a dog when we are going to have a pet. The concept of projection is based on the view that our psychological condition has an influence on our thought.

The concept of "projection" is convenient. By using the concept, we are apt to think that we can treat both physical phenomena and psychological phenomena without referring to the relationship between them. Even if it seems to be justifiable, it cannot apply to the problem of color. It is only a stopgap measure to avoid the difficulties about the problem of color.

An additional explanation to those who have come to feel another doubt

by having felt some doubt about the problem of color

Objection

I certainly felt some doubt against the common knowledge that the objects seen before our eyes are matter, because color is seen at their surface. But, I cannot easily accept the view that the objects seen before our eyes are not matter, because I came to feel new doubts by your explanation. They are as follows:

Doubt 1: Sensations accompany "the objects seen before my eyes".

Let's use the picture of Figure 3.2(c), which shows the world seen before our eyes, as an example. When I hold "the coffee cup seen before my eyes", I feel weight, hardness and warmth. If it is not matter, I will never feel such sensations. In fact, I do not feel such sensations in my dream, where any matter does not exist, no matter how realistic the dream is. Therefore, I cannot abandon the view

that the objects seen before my eyes are matter.

Doubt 2: "The objects seen before my eyes" must be "the objects I am looking".

I have the thought that "I am here and I am looking at the coffee cup". If the diagram which was mentioned at paragraph 2 in Chapter 2 is applied to the coffee cup, it will become the following one: the object I am looking → the body acting to look → the result of looking". Therefore, since "I am here and I am looking at the coffee cup", I cannot help thinking that the cup must be "the object I am looking" and matter.

Doubt 3: "The objects seen before my eyes" exist outside my body.

The third doubt relates to Doubt 2. The coffee cup seen before my eyes" exists outside my body. The outside of my body, including my body, is the material world. Since "the coffee cup seen before my eyes" exists outside my body, it is clear that the cup belongs to the material world. Therefore, I cannot help thinking that "the coffee cup seen before my eyes" is matter.

Because of these doubts, I cannot fully accept the view that "the objects seen before my eyes" are not matter.

It is natural to have such doubts. The logic, "I am here, and I am looking at the object, so it must be matter", is a hard trick set by the brain. It is not easy to see through it. However, there are some weak points in the trick even though it is being set cleverly. Using them as clues, we can logically clear up your doubts. It will be done in the following paragraphs.

Many of you would not feel any doubts against the phenomenon that you see color at the surface of "the objects seen before your eyes". The problem is how you come to feel some doubts against the common knowledge. If you do not feel any doubts, you would not come to have a will to pursue the subject.

In the following paragraphs, some phenomena will be shown as contradictions which are caused by assuming the objects seen before our eyes as matter. You might feel some doubts by knowing such phenomena, saying "Indeed, it is strange." Please be patient for a while, and keep reading the

following pages.

Summary of this paragraph

In order to deny the common knowledge that "the objects seen before our eyes are matter," it is only enough to show one counterexample. As a counterexample, the phenomenon that "color is seen at the surface of the objects seen before our eyes" has been suggested. Namely, color is a psychological phenomenon and it belongs to the surface of the objects seen before our eyes, so it leads us to the conclusion that "the objects seen before our eyes are not matter".

Chapter 3

Paragraph 2 The existence of sensations is the evidence that the objects seen before our eyes are matter?

The existence of sensations suggests that the objects seen before our eyes are matter ?

We think matter is quite different from the mind. If we are asked what the image of matter is, we would answer as follows: "Matter has mass and shape, and produces sensations of weight, hardness and warmth, etc." In a word, it means that matter is substantial, so to speak.

On the contrary, if asked what the image of the mind is, we would answer as follows: "The mind has neither mass nor shape, and we can neither see it nor touch it". In short, the mind is insubstantial.

Please look at the picture of Fig.3-2(c) again, and assume that you were the person in the picture. As shown in the picture, you see a coffee cup on the table. The coffee cup has its own shape, being cylindrical and having a little handle, and the surface is red. When you hold it in your hand, you will feel the weight and the hardness which is peculiar to a pottery. It is certainly different from a coffee cup which you see in your dream.

In addition to it, if the cup is filled with hot coffee, you will feel warmth and the aroma of coffee. Even if you dream so realistic a dream, you would not feel such realistic sensations. Or, you will not be able to imagine coffee so realistically even if you suppose to drink coffee in your mind.

Those who are convinced that "the objects seen before our eyes are matter" will insist that such

characteristics and sensations concerning a coffee cup are the evidence that the coffee cup seen before our eyes is matter. Namely, they insist: Only matter can have characteristics and sensations such as shape, weight, hardness, warmth and smell, therefore, the coffee cup seen before our eyes must be matter.

Certainly, there exist the physical characteristics which correspond to such sensations as weight, hardness, warmth and smell in the material world. "Weight" is proportional to the mass of the cup. "Hardness" is determined by the molecular structure which composes the cup. "Warmth" is proportional to the thermal energy of the cup. And, "aroma" is determined by the chemical compositions of coffee. Therefore, it is not wrong to conclude that the existence of sensations suggests that of matter.

Physical characteristics are not sensations themselves

The physical characteristics are not the same as the sensations themselves, though it is true that there are certain relationships between them. Regardless of the mass of a cup full of coffee, the sensation of weight being felt at our hand is a psychological characteristic. Regardless of the structure of a cup at the level of molecules, the sensation of hardness being obtained at our hand is a psychological characteristic. Regardless of the thermal energy of a cup, the sensation of warmth being felt at our hand is a psychological characteristic. Regardless of the chemical elements of coffee, the aroma of coffee is a psychological characteristic.

The fact that the coffee cup seen before our eyes has such psychological characteristics certainly suggests that "a coffee cup as matter" exists in the material world. However, it doesn't prove that the coffee cup seen before our eyes is matter. The truth is just the opposite. That these sensations accompany the coffee cup seen before our eyes is the evidence that it is not matter.

The coffee cup as matter certainly exists, as told repeatedly. The coffee cup made of pottery, filled with the coffee produced in Brazil, surely exists in the material world. If once put on a table, the coffee cup keeps existing there even if we leave our seat on an errand. However, the coffee cup, which is seen before our eyes, is not the coffee cup as matter, because just such psychological characteristics accompany it.

A comparison of the two pictures

Fig. 3-3(a)

The material world

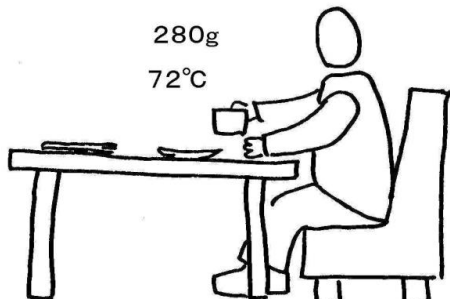


Fig. 3-3(b)

The material world

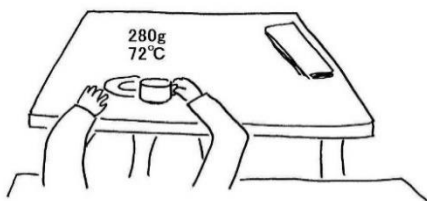


Fig. 3-3(c)

The world seen
before our eyes



In the previous paragraph, it was examined whether or not the world seen before our eyes is the material world by focusing on color, comparing the two pictures showing the two worlds. In this paragraph, let's compare two pictures by focusing on sensations.

Please look at the pictures of Figure 3.3. A person, who is trying to stretch his arm to the coffee cup on a table and to drink coffee, is drawn in the pictures. The pictures of both Figure 3.3 (a) and (b) show “the material world”. The former is drawn from the side, and the latter is drawn from the position of the person's eyes. Since these pictures show the material world, the mass of the coffee cup is shown by the gram and the thermal energy of coffee is shown by the temperature. Sensations are not shown anywhere in these pictures, because they are not physical phenomena but psychological phenomena.

On the other hand, Figure 3.3(c) shows “the world seen before our eyes”. It is the world which we are always experiencing and where sensations exist. Though, since sensations cannot be shown directly in the picture, such

sensations as hardness, weight and warmth of the coffee cup felt at the hand are shown by words in the picture.

Now, let's compare the two pictures of Figure 3.3(b) and (c). Do they coincide with each other? No, they do not. The sensations do not exist in the picture of Figure 3.3(b), but they exist in the picture of Figure 3.3(c). When you stretch your hand to a coffee cup, which cup corresponds to the one which you are looking at?

By way of experiment, please stretch your hand and hold a coffee cup actually. The moment your hand touches a cup, hardness of pottery and warmth of coffee will surely be felt at your hand. The

coffee cup seen before your eyes surely coincides with the cup drawn in the picture of Figure 3.3(c). It leads us to the conclusion that the coffee cup seen before our eyes is not matter and the world in which the coffee cup exists is not the material world.

An objection: Sensations are projected to the material world

Just like the case of color in the previous paragraph, those who insist the world seen before our eyes is the material world would use the concept of "projection" against the conclusion.

Objection

It is certainly correct that sensations are not physical characteristics but psychological phenomena. But, sensations accompany the objects seen before our eyes, and they are not produced without objects. Since various sensations are produced by the existence of the coffee cup, the cup seen before our eyes must be matter.

Answer

As mentioned previously, the existence of sensations suggests the existence of the objects as matter. It is surely correct. The coffee cup as matter which produces such sensations as hardness, weight and warmth certainly exists in the material world. But, the coffee cup as matter is not the one seen before our eyes.

If the coffee cup seen before our eyes is matter, matter and sensation come to coexist in the same world, though they are completely different from each other in their characteristics. Matter and sensation can coexist in the same world?

Objection

Color is a characteristic which accompanies the objects seen before our eyes, and therefore, it does not appear in our mind, but it is projected to the surface of the objects seen before our eyes, as mentioned in the previous paragraph.

Similarly, sensations such as hardness and warmth are characteristics which accompany the objects, and they are projected to the objects seen before our eyes. The world seen before our eyes is the material world, and both matter and sensation can coexist in the material world because sensations are projected to the material world.

"Answer" insists that the world seen before our eyes is not the material world because sensations which are psychological phenomena exist there. On the other hand, "Objection" insists that the world seen before our eyes is the material world and sensations are projected to the material world.

Strange phenomena about sensations being felt at a place where they should not be felt

If we interpret the world seen before our eyes as the material world, we must take the standpoint that sensations which are psychological phenomena coexist with matter in the material world. As a result, it causes various unexplainable phenomena as well as the problem of color. Let's show you two examples.

(1) Sensation at the tip of a pencil

The first example is a sensation being produced at the tip of a pencil. As it is easy to experience, please try it.

At first, please rub with your finger the surface of a table whose surface is smooth. Naturally, you will feel the smoothness at the tip of your finger. You will think it to be very natural, because sense organs exist at the tip of your fingers. Let's assume for now that your view is correct.

Next, please hold a pencil in your hand and rub the surface of the same table with the tip of the pencil. Where did you feel the smoothness? You must have felt it at the tip of the pencil.

You did not feel any doubt when you felt the smoothness at the tip of your finger. However, you might have had a strange impression when you felt it at the tip of the pencil. It is because sense organs do not exist at the tip of the pencil, and there is not any movement such as rubbing the table on your finger which is holding the pencil.

Judging from these facts, it might be wrong to think that the feeling of smoothness is based on the sense organs of the tip of a finger, but instead, it seems to be caused by the smooth movement of our hand and arm. In addition, if we pay attention to the feeling a little more, we will know that the smoothness is felt not at the tip of the finger or the pencil but at the surface of the table.

Whether we feel the smoothness at the tip of the pencil or at the surface of the table, we feel it at the place where sense organs do not exist. To those who interpret the world seen before our eyes as the material world, it must be a strange phenomenon. How do they explain this phenomenon from

their standpoint which interprets the table, the pencil and the fingers seen before our eyes as matter? They will again use the concept of "projection" just like the case of color and sensations?

(2) Sensation in a mirror

The second example is a sensation of touch which is produced in a mirror. You can easily experience it, too.

First, please touch your cheek by your hand. Naturally, you will feel a sensation of touch at your cheek. As for the phenomenon, you will not feel any doubt because sense organs exist at both your hand and cheek.

Next, please touch your cheek again, looking at your face reflected in a mirror. You would feel a sensation of touch at the cheek which is reflected in the mirror, though it might not go well if being conscious of it too much. It means that a sensation of touch is felt in the world of mirror which does not exist actually.

This phenomenon is called "predominance of sight" in psychology. Namely, it says that "the information of sight" has priority over "that of sensation" concerning their position when they exist at the same time. As for this case, though the sensation of touch ought to be felt at the cheek of your physical body, it is actually felt at the cheek reflected in the mirror. It is because the position of the cheek reflected in the mirror is predominant to that of the cheek at your physical body.

When "the information of sight" and "that of hearing" exist at the same time, the former is dominant to the latter. For example, when we are watching TV through earphones, a person's voice in TV seems to be heard from the person's mouth though it ought to be heard from the earphones. This is also the example that "the information of sight" is predominant to "that of hearing" concerning their position.

Though these phenomena are named "predominance of sight or hearing", they are strange phenomena and have contradictions in themselves as long as we think the world seen before our eyes is the material world. It is because sensation and sound are felt or heard at the places where they ought not to be felt or heard originally. However, if we interpret the world seen before our eyes as the apparent material world, we come to realize these phenomena to be natural and we can get out of self-contradiction. It is necessary for us to clear some hurdles in order to understand it.

Summary of this paragraph

Sensations are produced based on physical characteristics. Therefore, the existence of sensations suggests the existence of objects as matter.

However, the physical characteristics corresponding to sensations are not psychological phenomena but physical phenomena. The fact, sensations exist in the world seen before our eyes, means that the world is not the material world.

Chapter 3

Paragraph 3 The objects seen before our eyes are "the objects we are looking"?

A trick; "I am here, and I am looking at the objects."

The most crucial reason why we support the common knowledge that the world seen before our eyes is the material world must be our view that "I am here, and I am looking at the objects seen before my eyes." It will be well understood when thinking about "the act of drinking coffee" as an example of our view. Please think it as your case.

First of all, you have a desire to drink coffee in your mind. You turn your eyes from a newspaper which you are reading now to a coffee cup on a table, and stretch your hand to the cup. You put strength into your fingers according to the weight of the cup and try to hold it. You carry the cup to your mouth and drink coffee, after confirming it not to be too hot.

Through a series of these acts, you must have the view that "I am here, and I am looking at the coffee cup seen before my eyes". Namely, you act under the view that "the coffee cup seen before my eyes" is the object which I am looking at and I am going to hold it. As a result, you come to think that "the coffee cup seen before my eyes" is "the object I am looking".

Our view, "I am here, and I am looking at the objects", is the most crucial reason why we cannot realize the true feature of the mind. It is a hard trick. However, it will gradually be seen through in the following paragraphs.

Outline of the trick

Fig. 3-4(a)

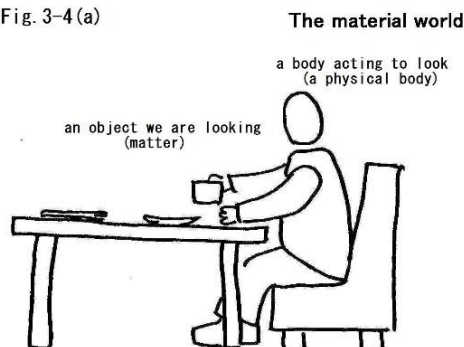


Fig. 3-4(b)

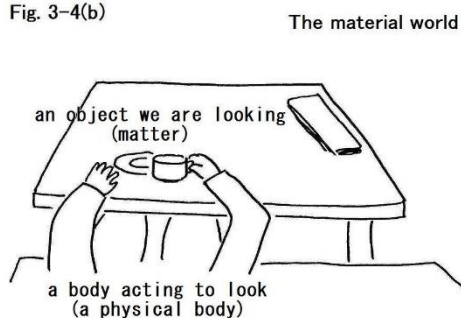
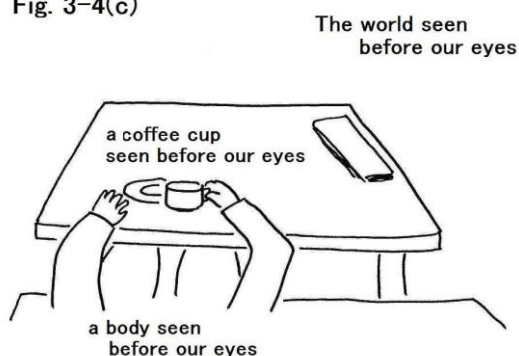


Figure 3.4(a), but it is drawn from the position of your eyes and by perspective. The same explanation as that of Figure 3.4(a) will also be done about this picture. Namely, there exist your physical body and a coffee cup as matter in the material world. And, a series of your acts of drinking coffee will be performed: stretching your hand to the coffee cup, holding it, carrying it to your mouth and drinking coffee. The coffee cup is "the object you are looking" and your body is "the body acting to look", as well as the case of Figure 3.4(a). It is only the repetition of the story mentioned at the picture of Figure 3.4(a).

Fig. 3-4(c)



Prior to the detailed explanation of the trick, let's explain concisely the mechanism of the trick which lurks in our view by using Figure 3.4. Please look at the picture of Figure 3.4(a) which shows the material world, and assume that you are the person in the picture. The picture shows "the act of drinking coffee" by the side view. There certainly exist your physical body and a coffee cup as matter in the material world. A series of your physical acts such as stretching your hand to the coffee cup, carrying it to your mouth and drinking coffee is now being performed. It is surely true. The coffee cup is "the object you are looking" and your body is "the body acting to look".

Next, let's think about the picture of Figure 3.4(b). This picture also shows the material world as well as that of

In addition, let's think about the picture of Figure 3.4(c) which shows the world seen before your eyes. In this picture, the coffee cup is not colored intentionally, though the composition of the picture is the same as that of Figure 3.2(c) in paragraph 1 of Chapter 3.

Therefore, it is entirely the same as the picture of Figure 3.4(b) and (c). When drinking coffee, the same acts in Figure

3.4(a) and (b) will be performed in Figure 3.4(c) as well. You stretch your hand to the coffee cup seen before your eyes, carry the cup to your mouth and drink coffee.

Thus, a series of the acts of drinking coffee will equally be performed in these three cases in Fig. 3.4 (a), (b) and (c). They are all your acts of drinking coffee, and the explanations which were done concerning these three pictures are all correct. However, it is not the picture of Figure 3.4(b) but that of Figure 3.4(c) that correctly reflects the meaning of the view that "I am here, and I am looking at the coffee cup".

You would not agree with the conclusion because the explanation has not been done in detail, but the mechanism of the trick is working exactly at this point. In a word, a series of the acts which is being performed in the picture of Figure 3.4(c) would seem to you the same as that of the acts in Figure 3.4(b), though the former is "the world seen before your eyes", and the latter is "the material world".

You are convinced that you are not the person in Figure 3.4(c) but the person in Figure 3.4(b), though you would think they are the same. And, you conclude that your body seen before your eyes is the physical body and the outside of your body including your body is the material world. And more, by using the logic that "I am here, and I am looking at the coffee cup seen before my eyes", you come to have the view that "the coffee cup seen before my eyes" is "the object I am looking".

The world seen before our eyes is not the material world, as mentioned many times. It is difficult to realize that the two worlds, which are shown by the two pictures of Figure 3.4(b) and Figure 3.4(c), are different from each other. One of the reasons why we cannot distinguish them is that both the pictures of Figure 3.4(b) and Figure 3.4(c) are drawn by the same method. We compare the picture of "the world seen before our eyes" (Figure 3.4(c)) with that of "the material world" (Figure 3.4(b)). And, we come to conclude that the world seen before our eyes is the material world, since both of them seem to coincide.

In paragraph 1 of Chapter 3, we examined the problem of color to prove that the two worlds are different from each other. In this paragraph, let's explain that "the objects seen before our eyes" are not "the objects we are looking" but "the results of looking" by analyzing a double image.

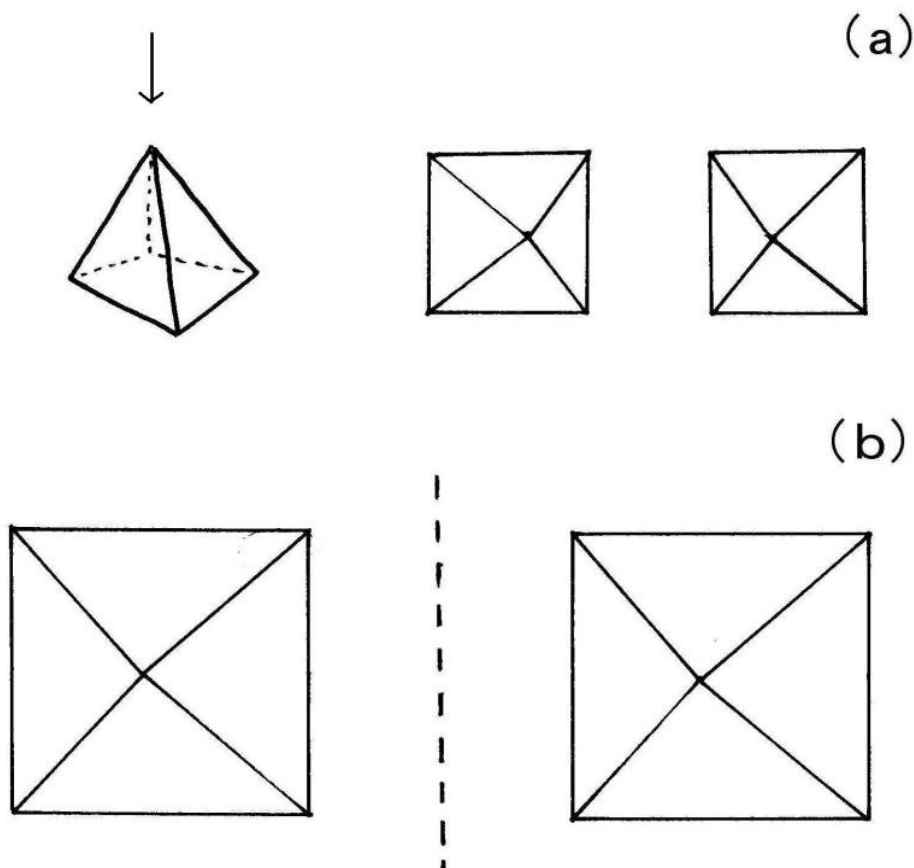
A double image

Our eyes are located at the right and left of our face. Therefore, when we look at an object, we turn both eyes towards the object. Turning both eyes towards one point is called "convergence". As a result, the image of the object is focused on the center of the right and left retinas, and we can see the object as one image.

The area where the right and left retinal images completely coincide is limited to the center of the retinas. They don't coincide even if they are only a little away from the center. By way of trial, please hold an object such as an eraser before your eyes, and compare the images which are seen by your right and left eye. You will be able to know the difference of the right and left images. While the difference of both images is being small, it plays a role as a clue so that we can see the object three-dimensionally.

Figure 3.5(a) shows the images obtained at the right and left eyes when we look at a quadrangular

Fig. 3-5



pyramid from above.

They are slightly different from each other about the position of their tops. Figure 3.5(b) is a picture which has redrawn Figure 3.5(a) so that we can see the quadrangular pyramid three-dimensionally.

Please put a mirror on the dotted line as the mirror face is the left, and look at the right figure with your right eye, and the left figure reflected by the mirror with your

left eye, adjusting both images so as to be seen as one image. Then, a three-dimensional figure like a quadrangular pyramid will appear.

Next, please put a mirror as the face is the right, and look at the right figure reflected by the mirror with your right eye, and the left figure with your left eye. Then, an inverted quadrangular pyramid will appear.

Thus, while the difference of the right and left images is being small, it works as a clue for an object to be seen three-dimensionally. However, as the difference grows, it becomes difficult to see the object as one image, and it becomes a double image.

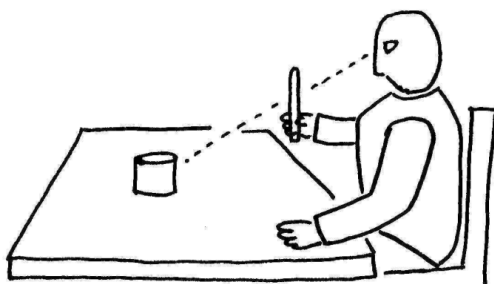
By way of trial, please turn your eyes towards you, and keep them cross-eyed. Then, a pencil, for example, which has been seen before your eyes as one image, will become a double image.

In daily life, it is rare for us to notice a double image because we are concentrating only on the center of the visual field. However, a double image is always occurring at the area a little away from the center of our view.

Contradiction of a double image

Fig. 3-6(a)

The material world

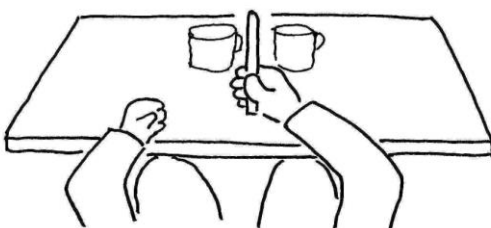


By using the phenomenon of a double image, let's explain that the objects seen before our eyes are not "the objects we are looking" but "the results of looking".

The picture of Figure 3.6(a) shows "the material world". As shown in the picture, please hold a pencil before your eyes against a coffee cup on a table, and focus your eyes on the pencil.

Fig. 3-6(b)

The world seen before our eyes



Then, you will see one pencil clearly against two coffee cups which are a bit out of focus as shown in the picture of Figure 3.6(b), which shows "the world seen before your eyes".

You will think, "It is natural." However, the problem is how the pencil seen before your eyes is interpreted by you. Please be careful; this is the problem about the pencil

which is seen before your eyes, that is, in "the world seen before your eyes". In common knowledge, the pencil is interpreted to be a pencil as matter which exists in the material world. In short, it is interpreted as a pencil of a real one. In fact, you can certainly hold it and write with it if you want to do so. You are convinced that it is a pencil as "a real existence", not a phantom or an image.

If the diagram of "the act of looking" applies to the pencil, that is, "the object we are looking (matter) → the body acting to look (matter) → the result of looking (psychological phenomenon)", it proves to be interpreted as "the object you are looking". Let's assume that your interpretation is correct for the time being, and pursue the subject.

Next, please turn your eyes from the pencil to the coffee cup. Then, as shown at the picture of Figure 3.6(c), which shows "the world seen before your eyes", you will see a double image of the pencil a bit out of focus on this side of the coffee cup.

Well, a problem occurs regarding the interpretation of the double image. In common knowledge, the pencil which you gaze at, and is seen as one pencil, is thought to be matter, to be a real pencil, and to be "the object you are looking". Then, how will the pencils as a double image, which are seen when you focus on the coffee cup, be interpreted? Probably, they will be interpreted to be only images.

However, is such interpretation really reasonable? In fact, if you focus on the pencil again, the pencils as a double image turn to one pencil. If the pencil seen as one pencil is a real pencil, the pencil as a real existence will never disappear anywhere even if you turn your eyes away from the one pencil. Which pencil do you think is the real pencil when it is seen as a double image?

Objects seen before our eyes are "the results of looking"

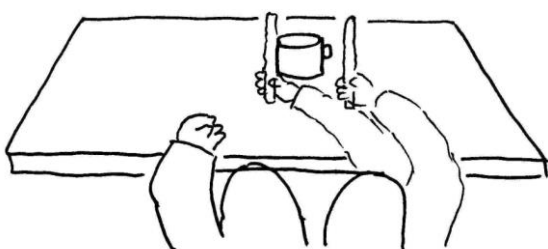
There would be no objection to the view that a double image is originated in the retinal images in

the process of "the act of looking". When you see a double image as shown in Figure 3.6(c), if you close your left eye, you will see one pencil at the left side of the coffee cup, and if close your right eye, you will see one pencil at the right side of the cup. The right and left images are combined, and we see a double image.

Though, a double image does not occur at the stage of

Fig. 3-6(c)

The world seen
before our eyes



the retinas. We see it only after the two images of the right and left retinas are changed into electrical signals, transmitted to the cerebrum and processed there. If applied to the diagram of "the act of looking", a double image is not "the object we are looking" but "the result of looking", because it is the phenomenon caused by the information processing in the cerebrum, which is part of "the body acting to look".

Fig.3-6(d)

The material world



In fact, if this situation is drawn from the position of the observer's eyes "in the material world", the picture of Figure 3.6(d) will be obtained. There are only one pencil and one coffee cup whether we turn our eyes to either the pencil or the coffee cup. A double image does not exist anywhere in the material world.

If a double image is "the result of looking", the pencil seen as one pencil must also be "the result of looking". As you turn your eyes from the coffee cup to the pencil, the two images of the pencil begin to gradually approach with each other, and they come to be seen as one pencil. The logic that a double image of a pencil is "the result of looking" and one pencil is "the object we are looking" does not hold up.

Or, please close one of your eyes when you see a double image of a pencil. You will surely see one pencil. The logic that the two pencils which are seen with both of your eyes are images as "the result of looking" and the one pencil which is seen with your one eye is a real pencil as "the object you are looking" does not hold up.

In common knowledge, "the result of looking" is thought to be a vague image in the mind; for example, a vague image of an apple reminding in our mind when we hear the word an "apple", or a vague image of a coffee cup left in our mind when we close our eyes just after looking at a coffee cup. However, "the result of looking" obtained by the act of looking is not such vague images, but the very pencil seen before our eyes. "The results of looking" exist in the world seen before our eyes as the result of "the act of looking".

We will also be able to realize the conclusion if we think about the 3-D graphics. The mechanism of the 3-D image is explained as follows: the two different right and left images of an object are sent to the center and processed there, and they come to be seen three-dimensionally. The explanation is

certainly correct. However, as understood by using a mirror in Figure 3.5(b), what we see three-dimensionally is not something in our mind, but the 3-D image itself which is seen before our eyes.

Objects seen before our eyes have dual meanings

As briefly mentioned in paragraph 2 of Chapter 2, we interpret the objects seen before our eyes as "the objects we are looking" as common knowledge shows, but at the same time we interpret it as "the results of looking" without noticing it. Namely, the objects seen before our eyes have dual meanings.

Concerning the act of looking, there are two kinds of verbs, "look" and "see", as well as other verbs about perception. The verb "look" tends to be used when we think we are looking at objects which exist outside our body, being strongly conscious of the existence of our body. In a word, the verb "look" is used based on the view that "I am here, and I am looking at the objects which exist outside my body". There is a clear distinction between "the objects we are looking" and "the body acting to look".

On the contrary, the verb "see" tends to be used when we are less conscious of "the act of looking", namely, when we think that the objects exist there as a result of "the act of looking".

For example, when we say that "I am looking at a coffee cup", we assume that the coffee cup seen before our eyes is the one as matter which exists in the material world and is "the object we are looking". On the other hand, when we say that "I see a coffee cup", we assume that the coffee cup seen before our eyes is the one as a result of the act of looking, in other words, it is "the result of looking".

A double image of a pencil, which was examined at the previous clause, belongs to this case. When a pencil is seen as one pencil, we interpret it as "the object we are looking", and we think that "I am looking at the pencil". On the other hand, when a pencil is seen as two pencils, we interpret them as "the results of looking", and we think that "two pencils are seen".

In some cases we interpret "the objects seen before our eyes" as "the objects we are looking", and in other cases, as "the results of looking". We use properly and unconsciously the two verbs "look" and "see" so that we do not feel doubt about the common knowledge that the world seen before our eyes is the material world.

However, the two kinds of interpretation sometimes cause confusion. Let's examine the following two problems: "An inverted retinal image" and "We cannot see it?"

Problem of an inverted retinal image

Since our eyes are composed of convex lens, the external world is projected on our retinas inversely. Therefore, the external world ought to be seen inversely, because our perception is based on the retinal image. However, we see the external world which is upright. "Why do we see an upright image of the external world though it is inverted at the retinas?" This is the problem of "an inverted retinal image".

A relatively many number of people seem to feel some doubt about this problem compared with the problem, "Why do we see color at the surface of the objects seen before our eyes", which was examined in paragraph 1 of Chapter 3. It would be because the problem of "an inverted retinal image" is not known to us so much, though that of "color" is familiar to us.

In order to get a sufficient answer to this problem, we need to wait for the reconsideration of "our body" which will be pursued in the next paragraph. Therefore, this problem will be taken up again in the next paragraph.

One of the reasons why we have such a doubt is because we interpret "the objects seen before our eyes" not as "the objects we are looking" but as "the results of looking". In fact, if we interpret "the objects seen before our eyes" as "the objects we are looking", we will not feel any doubt, and any logical contradiction will not occur, because "the objects we are looking" are standing upright though the images at the retina are inverted.

Anyway, we interpret "the objects seen before our eyes" as "the results of looking" without noticing it, and as a result, we come to have the doubt; Why are "the objects seen before our eyes" seen as being upright, though they are "the results of looking"?

We cannot see it?

The second problem is "We cannot see atoms and molecules", which was told in paragraph 1 of Chapter 2. This paper insisted that when we draw a picture of the material world we must draw it full of space, because materials are composed of atoms and molecules which are full of space. On the

contrary, there was an objection to the insistence; "It is not necessary to do so. We cannot see them because atoms and molecules exceed the resolution capability of our eyes." However, considering the common knowledge that the world seen before our eyes is the material world, which the objection is based on, the logic is strange and is inconsistent with the view itself.

The view that "We cannot see it" is contradictory to itself, because it interprets "the object seen before our eyes" as "the object we are looking", and as "the result of looking" as well. Namely, since the objection is based on the common knowledge that the objects seen before our eyes are matter, it ought to interpret "the objects seen before our eyes" to be "the objects we are looking". However, the expression that "We cannot see it" means that "We could not see a minute structure as a result of the act of looking". In short, it means that "the objects seen before our eyes" are interpreted as "the results of looking".

For example, let's think about the case that we are examining pores of a plant's leaf with a microscope. We will be able to see the details of a pore at high magnification of a microscope. It is due to the image of a pore which is obtained at the eyepiece, and we express it as "We can see the minute structure of a pore". However, there is not any change at the leaf of a plant which is "the object we are looking", irrespective of the magnification of the microscope.

The expression, "We cannot see it", is the same with the case of the microscope. The objection, "We cannot see atoms and molecule, because they exceed the resolution capability of our eyes", must be based on the view that we cannot see them as a result of the information processing, which starts at retinas and ends at the cerebrum. Therefore, it surely means that atoms and molecule, "the objects seen before our eyes", are being interpreted as "the results of looking". In a word, the insistence, "We cannot see it", is based on the standpoint that "the objects seen before our eyes" are "the objects we are looking", but at the same time they are being interpreted as "the results of looking".

In this case, we interpret "the objects seen before our eyes" as having two meanings without noticing it. Of course, it is correct to interpret "the objects seen before our eyes" as "the results of looking".

The conclusion that "the objects seen before our eyes" are "the results of looking" might be incomprehensible to you. One of the reasons is that we use properly two verbs "look" and "see" according to the situation. In some cases we unconsciously think that "I am looking at an object" and

in other cases "I see an object", so as not to be in confusion about the interpretation of "the objects seen before our eyes". We must pay attention to the fact that we are using both the verbs "look" and "see" to the same object seen before our eyes.

The objects seen before our eyes are apparent matter,

and the world seen before our eyes is the apparent material world

From the analysis of a double image, it has been concluded that the pencil seen before our eyes is "the result of looking". It is not limited only to the pencil seen before our eyes. All of the objects seen before our eyes, such as the coffee cup, the table, the floor, the wall and the ceiling, which are seen before our eyes, are also "the results of looking". In addition, what we see outside a window, such as the street, the ground and the sky, are all "the results of looking" as well.

"The results of looking" are psychological phenomena, because they are obtained at the final stage of "the act of looking". Namely, "the results of looking" are obtained after the information from the external world are carried by light to retinas, are converted into electrical signal, and are transmitted to the brain. The objects which are appearing continuously in the world seen before our eyes are usually thought to be matter, but they are not matter. They are, so to speak, apparent matter.

Though, you might insist that the objects seen before our eyes must be matter because they are accompanied by sensations such as weight, hardness and warmth when we hold or touch them. As mentioned in the previous paragraph, the existence of sensations suggests that of matter, but it doesn't mean that the objects seen before our eyes are matter.

Since the world seen before our eyes is composed of various apparent matter, it is not the material world, but the apparent material world, so to speak. Up to now, it has been told many times that the world seen before our eyes is a world different from the material world. It is derived from the fact that the objects seen before our eyes are "the results of looking".

Common knowledge shows us what matter is like, and what the material world is like, and we accept them without doubt. However, they are only common knowledge. The Common knowledge about matter and the material world has been built up by the results which are obtained through the act of looking at the material world, the act of hearing of the material world and the act of touching of the material world, etc. They are not matter itself or the material world itself.

It is quite natural that the view about the material world shown by modern physics is quite different from that of common knowledge. The material world we know as common knowledge is only a small part of the material world which is caught by visible rays and in the resolution capability of our eyes.

Though, you might not be able to easily accept these conclusions that the objects seen before our eyes are apparent matter, and the world seen before our eyes is the apparent material world. It is natural for you not to accept the conclusions, because you have thought till now that the objects seen before your eyes are matter and the world seen before your eyes is the material world.

The logical process to the conclusions has been shown by using familiar phenomena such as color, sensations and a double image, but you would not have accepted the conclusions. You would be thinking that there must be a logical contradiction somewhere, and you would be trying to find out it. If I were you, I would also do so.

The starting point of the route which leads us to the understanding of the real feature of the mind is to realize that the objects seen before our eyes are the results of looking. It is necessary for us to accept the results which have been obtained through a logical analysis, and to reconsider the meaning of the results without being caught in common knowledge.

However, you would not agree with the conclusions. The hardest one among your doubts about the conclusion must be our body. "You say the objects seen before our eyes are apparent matter. But my body seen before my eyes is the physical body which exists in the material world. Why do the objects, which you insist are apparent matter, exist outside my physical body?" It must be the most unacceptable point to you. It will be explained in detail in the next paragraph.

Failure of the logic of "projection"

The problem of "color" and "sensations" were examined in paragraph 1 and 2 of Chapter 3 to explain that the world seen before our eyes is not the material world. As a result, the following contradiction has been pointed out: "If the world seen before our eyes is the material world, color and sensations come to coexist with matter in the material world, though they are psychological phenomena." However, "Objection" insisted: "The psychological phenomena such as color and sensations are projected to the material world."

The same logic will also be applied to a double image. Namely, they will insist that a double image

is projected to the material world, as a reply to the indication that if the world seen before our eyes is the material world, a double image which is psychological phenomenon comes to exist in the material world.

Certainly, the logic of projection about color and sensation might be natural for us though it is not correct, because color and sensations are characteristics relating to the objects and our physical body existing in the material world.

For example, let's think about a coffee cup. The color of a coffee cup is the characteristic of the cup and the sensations such as weight and hardness are the characteristics concerning the cup and our physical body. The coffee cup and our body, which are assumed to be the cup as matter and as the physical body respectively, exist in the world seen before our eyes. Therefore, it might be natural for us to think that color and sensations are projected to the coffee cup seen before our eyes, though the cup is assumed to be matter.

However, the logic does not hold up about a double image. If the world seen before our eyes is the material world and a double image is projected to the material world as "Objection" insists, the original of the double image must exist in the world seen before our eye which "Objection" insists as the material world. But, the original pencil as matter is not found anywhere in the world seen before our eyes. It is only a double image that exists in the world seen before our eyes.

The world seen before our eyes is the apparent material world as it was proved at the preceding clause. Therefore, the logic of projection does not hold up about color and sensations as well.

Summary of this paragraph

The objects seen before our eyes are not "the objects we are looking" but "the results of looking". This fact is the starting point to clarify the true feature of the mind.

By logically pursuing it, we have obtained the following conclusion: "The objects seen before our eyes" are not matter but apparent matter, and "the world seen before our eyes" where the apparent matter exists is not the material world but the apparent material world.

Chapter 3

Paragraph 4 Our body which is seen before our eyes is really the physical body?

Reconsideration of our body

The purpose of this paragraph is to reconsider about whether our body seen before our eyes is really the physical body which exists in the material world.

The word "the physical body" has been used to refer to the body existing in the material world, and the words such as "the body seen before our eyes" and "our body seen before our eyes" have been used to refer to the body existing in the apparent material world up to now. From now on, these words will also be used as such meanings.

Though, you would think that it is not necessary to do so, because you think the body seen before our eyes is the physical body composed of various organs. But, please be mindful of the wordings, and let's pursue the subject.

Our thought that "I am here and I am looking at an object" is a hard trick. If we pay attention to the part of "I am looking at an object", it leads us to the view that the objects seen before our eyes are "the objects we are looking". Moreover, the view comes to support the common knowledge that "the objects seen before our eyes are matter and the world seen before our eyes is the material world".

On the other hand, if we pay attention to the part of "I am here", it comes to emphasize the existence of our physical body, and it leads us to the view of "the inside and outside of our physical body". In a word, there are two areas, "the inside of our physical body" and "the outside of our physical body" which are different from each other.

In addition, the view comes to support the logic as common knowledge: "Our body seen before our eyes is the physical body, and the outside of our physical body including our physical body is the material world. The objects seen before our eyes exist outside our physical body. Therefore, they are matter."

The logic also comes to support the common knowledge that "the objects seen before our eyes are matter and the world seen before our eyes is the material world" as well as the case of "I am looking at an object".

The common knowledge that "the objects seen before our eyes" are "the objects we are looking" was

denied by the analysis in the previous paragraph, and they have been proven to be "the results of looking".

The common knowledge was certainly denied. However, another doubt would remain in your mind in relation to the view of "the inside and outside of the physical body": "You say that "the objects seen before our eyes" are not "the objects we are looking" but "the results of looking". But "the results of looking" are created in our mind. Why does what have been created in our mind exist outside our physical body?"

Your doubt originates from the view of "the inside and outside of our body". Therefore, let's reconsider our body, and correct our misunderstanding about our body.

Interpretation of our body seen before our eyes

We are convinced that we have our own physical body. Certainly, it is correct. Though our appearance, such as height, weight and face, etc., is different from each person, the foundation of the physical body, such as muscle, nervous system, alimentary system, respiratory system and skin, etc., is common to all of us. Such our physical body surely exists in the material world.

Having such a physical body, we live in a society, wearing clothes, tidying our hair and communicating with others by using words. It is our feet that enable us to go to a station. It is our hands that enable us to take small change out of a purse and buy a ticket. And it is also our physical body that enables us to wait for a train at a platform.

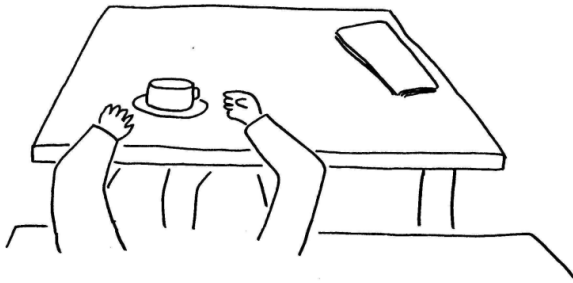
Since the story of this paper has been pursued based on the assumption that there exists the material world whether any creature of being conscious like human beings exist or not, it is certainly natural for us to have the conviction that we have our own physical body. However, it is necessary for us to reconsider the interpretation about "our body seen before our eyes." In a word, it is a question whether it is correct or not to interpret our body seen before our eyes as the physical body.

How do we know the existence of our physical body?

At first, let's think about how we can know the existence of our physical body. For one thing, we can know the existence by seeing it. In fact, we can certainly see our chest, abdomen, arms and feet in our visual field at any time, though we cannot directly see our face and back.

Fig. 3-7

The world seen
before our eyes



The picture of Figure 3.7 shows the world seen before our eyes. Please assume you were the person in the picture and think about the situation. You see a coffee cup, a table, and part of your hands and knees in front of you. You can stretch your hand towards the coffee cup seen before your eyes, hold the cup and drink coffee. It is reasonable for you to think the body seen before your

eyes is your physical body, because you see it and you can manipulate it by your will.

For another, we can know it by the sensations produced at the body. By way of experiment, please close your eyes. Then, you will not see your body which has been seen till now. However, if you raise your arm you can know the existence by the sensation of weight. You can also know the existence of your face by feeling a gentle wind to your face, and, you can know the existence of your head by feeling the movement of it. If you touch each part of your body by your hand, you can know the existence of these parts by the sensations produced at both of your hand and your body.

Thus, we can know the existence of our physical body by these sensations and feelings concerning our body.

An apparent physical body

As mentioned above, we think that we can know the existence of our physical body by seeing it and feeling the sensations. They certainly suggest the existence of our physical body, and it is correct. However, we cannot conclude that the body seen before our eyes is our physical body by such reasons.

In the previous paragraph, we analyzed a double image, and reached the conclusion that the logic, "When a pencil is seen as one pencil it is a real pencil and when it is seen as two pencils they are images", does not hold up.

The same analysis can also apply to our body seen before our eyes. Please hold up one of your fingers before your eyes and focus on it. You will clearly see one finger there. According to common knowledge, it will be interpreted as a real finger existing in the material world. Next, please turn your eyes forward or backward. Then, you will see two fingers which are out of focus a little.

The logic, "When one finger is seen it is a real finger and when two fingers are seen they are images",

doesn't hold up as well as the case of a pencil. Whether it is one finger or two fingers, these fingers seen before your eyes are not "the objects you are looking" but "the results of looking". In other words, they are not the real fingers existing in the material world but the psychological phenomena, apparent fingers, so to speak.

It certainly suggests the existence of your physical body when you see your body in front of you, but it does not prove that the body seen before your eyes is the physical body.

As another example, the logic, "Our body seen before our eyes is the physical body because we feel sensations", doesn't also hold up. As told in the paragraph 2 of Chapter 3, the existence of sensations suggests the existence of the objects as matter. Similarly, it suggests the existence of our physical body that we feel sensations concerning our body. It is surely correct.

Our physical body certainly exists, but the existence of sensations doesn't mean that our body which is seen before our eyes is the physical body. Where do we feel sensations? By way of trial, please rub the surface of a table with your finger. Naturally, you will feel the smoothness at the tip of your finger. There are sense organs at the tip of your fingers, but they are only an entrance which receives stimuli from the environment and carries them to the center. The sensation of the smoothness is not produced at the sense organs of the tip of your fingers but is produced only after your brain is activated. However, you feel the smoothness at the tip of your finger.

In addition, if you observe it a little carefully, you would notice that you feel the smoothness at the surface of the table, not at the tip of your finger. And, as examined in the paragraph 1 of Chapter 3, when you rubbed the surface of a table with a pencil you felt the same smoothness at the tip of a pencil which is not a physical body.

Because of these reasons, your body seen before your eyes is not your physical body but an apparent physical body, though you are convinced of it as your physical body. It is just the same as the case of the coffee cup seen before your eyes which was proved to be an apparent matter.

It is true that all the people have their own physical body, for example, a person who is expressively chatting, a stranger dressed in a popular clothes and your friend whom you have met after a long time and you are shaking hands with. They all have their own physical body, surely. However, all of them seen before your eyes are "the results of looking", and their bodies are "apparent physical bodies".

Doubts caused by the view of "an apparent physical body"

It must be unbelievable for you that your body seen before your eyes is not the physical body but "the apparent physical body." You might insist; "My body is actually seen before my eyes, and various sensations are being produced at each part of my body seen before my eyes." However, the answers to these doubts of yours have been already shown.

Other doubts, which might be paraphrased as objections, would be the following two questions. One of them is: "The mind is accompanied by self-consciousness and it always stays in the physical body. My mind stays in my body seen before my eyes. Therefore, my body seen before my eyes must be my physical body." This doubt gets to the heart of the problem about the relationship between the mind and I. Therefore, it will be examined in paragraph 1 and 3 of Chapter 4, and the answer will be shown there.

The other is: "My physical body exists in the material world. My body seen before my eyes perfectly synchronizes with the surrounding world. For example, when I want to drink coffee, I can stretch my hand to the coffee cup, hold the cup, carry the cup to my mouth and drink delicious coffee without fail. Therefore, the body seen before my eyes must be my physical body." In a word, you insist; "My body seen before my eyes must be the physical body, because the relationship between the coffee cup and my body seen before my eyes perfectly synchronizes with that of the coffee cup as matter and the physical body existing in the material world."

It is a system named "synchronization", so to speak, that skillfully adjusts the relationship between the apparent physical body and the material world. This doubt will be cleared by the explanation of the system.

System of synchronization

The apparent physical body and the apparent material world seen before our eyes artfully synchronize to the physical body and the material world. It owes to the information processing of the brain. Let's name it "a system of synchronization".

The system plays an important role in making the apparent material world look like the material world, and making the apparent physical body look like the physical body. Namely, the system works to reproduce the two conditions concerning the material world and the physical body in "the world

seen before our eyes”.

One is that "the material world is immovable, the physical body is included in the material world, and the physical body moves around in the material world". In fact, the relationship between the physical body and the material world is reproduced in the world seen before our eyes by the system of synchronization. The apparent physical body is included in the world seen before our eyes which is immovable, and the apparent physical body moves around in the apparent material world.

The world seen before our eyes and our apparent physical body are reproduced based on the retinal image. Therefore, it must be natural that the world seen before our eyes will bewilderingly change, because the external world which is projected at the retinas changes whenever our face or body moves. However, though our physical body moves, the world seen before our eyes is stable and our apparent physical body moves around in the apparent material world.

Video cameras are equipped with a function of reducing the blurring, and so the picture is stabilized to some degree. However, the system of synchronization of our brain which supports the relationship between the world seen before our eyes and our apparent physical body works much more artfully than video cameras. Even if the image of a room's wall greatly changes on our retinas by the movement of our head, it keeps standing at the right position in the world seen before our eyes. If there is not such a system, it will be immediately seen through that the world seen before our eyes is not the material world but the apparent material world.

The other is that "the position of the objects in the material world is correctly reproduced in the world seen before our eyes". For example, when we are going to hold a coffee cup, the positions of the cup and our hand in the apparent material world must perfectly coincide with those of the cup and our physical hand in the material world. Otherwise, we cannot hold a coffee cup, and it will be easily understood that the world seen before our eyes is not the material world.

The system of synchronization, however, is not always perfect though it is a very good one. It does not work well at some situations. For example, if we rotate about ten times and stop, the world seen before our eyes will sway, and we will become unable to keep our posture well with an unpleasant feeling. It is due to the temporary confusion of the system caused at the semicircular canal and the front yard which support the system.

However, even if we experience such confusion, we will not come to have doubts against the view

that the world seen before our eyes is the material world. We will probably only think that "I feel dizzy a little, and cannot see the external world correctly." The truth is that the system of synchronization is disordered, and the system cannot reproduce the external world correctly in the world seen before our eyes.

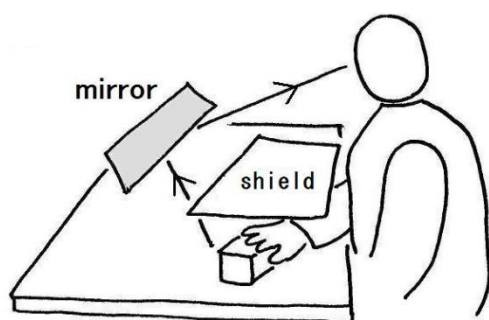
The world in a mirror: Another example of disorder about the system of synchronization

As another example of disorder about the system of synchronization, let's examine the movement of our body reflected in a mirror. You might think that the world reflected in a mirror is not the real one, but it is an interesting example as the disorder of the system.

As shown in Figure 3.8, please set up a situation which you cannot directly look at an object. And, looking at the object reflected in a mirror, please try to hold it, or to move it to various directions.

Fig. 3-8

the material world



The world reflected in a mirror is also an apparent material world, but it is different from the apparent material world which is seen directly, and it does not synchronize with the material world. In a word, the relative positions of "the upper and lower" and "the right and left" are the same at both the world reflected in a mirror and the material world, but the relative position

of "the depth" is reversing.

If we can directly see an object and our hand, we can stretch our hand toward the object and can hold it. On the other hand, when we can see only an object and our hand reflected in a mirror, if we stretch our hand toward the object, we will see our hand going away from the object in the mirror.

Even under such a condition, if the operation is simple we will be able to do it easily because we can depend on our memory. However, when it becomes complex, such as holding up an empty can, rotating it, and putting it on a table horizontally, we will suddenly be confused. It is due to the disorder which is caused in the system of synchronization.

A boundary which divides the inside and outside of an apparent physical body doesn't exist

Even in the case of unicellular organisms like an amoeba, a cell membrane divides the inside of a

living body from the external world, and it creates its own area. It is the same for a human being. A human being has a physical body, and the skin of it separates the inside of a physical body from the external world. The inside of a physical body is a person itself, and it becomes a special region different from the external world.

As known from the expression that "I am here, and I am looking at an object", we have a view that "We have our own body and interact with the external world by using it". And the view leads us to the thought of "the inside and outside of our body", and moreover, to the conclusion that "the inside and outside of our body are different from each other".

In the material world, these two areas, the inside and outside of a physical body, are certainly different from each other on the boundary of a physical body. It is surely true. However, the body which is indicated by the expression, "I am here", is not a physical body. We assume that we are referring to a physical body by the expression, but the body which is being referred by the expression is the apparent physical body seen before our eyes.

We must pay attention to the fact that there is no boundary that divides "the inside and outside of an apparent physical body". Namely, both the apparent physical body and the apparent material world are "the results of looking". The former is "the result of looking" obtained by "the act of looking at a physical body", and the latter is also "the result of looking" obtained by "the act of looking at the material world". Though their meanings are different from each other, they do not differ in their characteristic, namely, "the result of looking".

If it is a physical body, it is equipped with various mechanisms which maintain the functions of a physical body, and there is certainly a boundary that divides "the inside and outside of a physical body". On the contrary, an apparent physical body is "the result of looking at a physical body", and it doesn't have any mechanisms inside of it.

You might have an objection that "If an abdomen is opened at an operation, internal organs such as a stomach and intestines are seen." However, they are not the internal organs themselves, but only "the results of looking at them". They are apparent internal organs, so to speak.

Our body seen before our eyes is "the apparent physical body", and the outside of it is "the apparent material world". They are not different from each other in respect of their characteristics as "the results of looking". In a word, the boundary of an apparent physical body is only an apparent boundary.

The answer to the rebuttal and the doubt

Since the body seen before our eyes is an apparent physical body, and the boundary that divides "the inside and outside of the apparent physical body" does not exist, the rebuttal and the doubt mentioned at the beginning of this clause will be cleared.

One of the doubts was as follows: "Our body seen before our eyes is the physical body existing in the material world, and the outside including our body is the material world. The objects seen before our eyes exist outside our body. Therefore, the objects must be matter."

The other was as follows: "You say that the objects seen before our eyes are not "the objects we are looking" but "the results of looking." But, "the results of looking" are created in the mind. Why does what are created in the mind exist outside our body?"

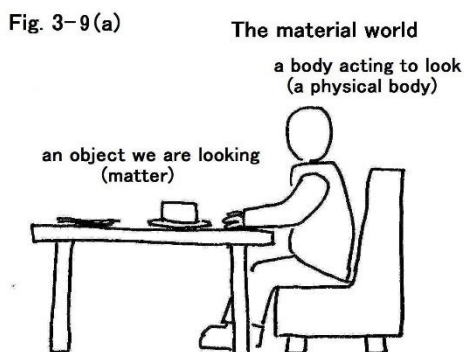
Both the doubts are originated in the common knowledge that our body seen before our eyes is a physical body and the outside of the body is the material world. The former doubt has been denied because our body seen before our eyes is an apparent physical body, which was clarified in this paragraph. Namely, our body seen before our eyes is not a physical body but an apparent physical body, and the outside of the body is not the material world but the apparent material world. Therefore, even if the objects seen before our eyes exist outside our apparent physical body, it doesn't mean that they are matter.

On the other hand, the latter doubt will also be cleared, because our body seen before our eyes is an apparent physical body and a boundary which divides the inside and outside of the apparent physical body does not exist. In other words, though we assume "the outside of our apparent physical body" to be "the outside of our physical body", it is not "the outside of our physical body" but "the outside of an apparent physical body", namely, the apparent material world.

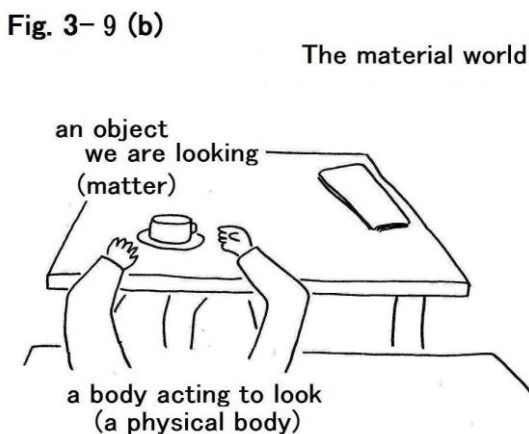
The objects seen before our eyes are "the results of looking at the objects existing in the material world", and similarly, "the world existing outside an apparent physical body" is "the result of looking at the material world", which is created in the mind. Therefore, though the outside and inside of an apparent physical body are certainly different from each other concerning their meaning, they do not differ in their characteristics, psychological phenomena. They are only being located at the different positions in the world seen before our eyes. It is wrong to think that the objects seen before our eyes exist at the outside of our physical body.

It is impossible to look at "the result of looking"

Let's examine the meaning of the expression that "I am here, and I am looking at an object," by using Figures 3.9. Both the pictures of Figure 3.9 (a) and (b) show the material world. A person (a physical body) and a coffee cup (matter) are drawn, and he is looking at the coffee cup. Please assume that you were the person, and think about the situation.



If the expression is interpreted in the context of the material world, it means that "I have my own physical body, and I am looking at the coffee cup with my eyes". In fact, there exist our physical body and a coffee cup as matter in the material world. Light which is reflected at the coffee cup reaches our eyes, converted into the electrical signal at the retinas, transmitted to the center through nerves, and as a result, "the act of looking" is completed, though it lacks the result of looking.



In the material world, there certainly exist two elements concerning "the act of looking": "a coffee cup we are looking (matter)" and "the body acting to look (a physical body)". Therefore, there is no problem if we use the expression that "I am looking at an object".

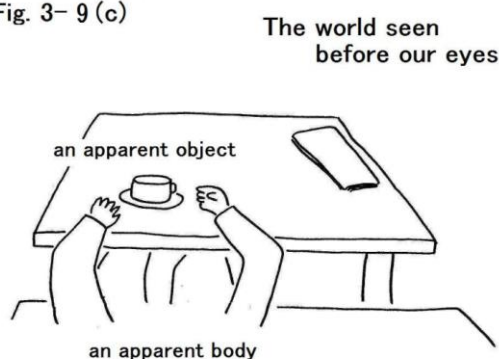
However, as a matter of fact, we are using the expression to refer to our body and the coffee cup seen before our eyes, namely, to the apparent physical body and the apparent coffee cup. In a word, what is shown by the expression that "I am looking at a coffee cup" is not the phenomenon in the material world but in the apparent material world.

An important fact is revealed from the following two conclusions: One is that the objects seen before our eyes are not "the object we are looking" but "the result of looking", which is the conclusion of the previous paragraph. The other is that our body seen before our eyes is not "the physical body" but "the apparent physical body", which is the conclusion of this paragraph.

The important fact is that "An apparent physical body cannot look at apparent objects", in other words, "It is impossible to look at "the results of looking". Namely, the logic, "I am looking at an object", does not hold up in the world seen before our eyes.

The picture of Figure 3.9(c) shows "the world seen before a person's eyes". Please assume that you

Fig. 3- 9 (c)



were the person in the picture, and think about the scene.

Based on common knowledge, you will think that the hands and the knees are parts of your physical body and the coffee cup is the one as matter. As a result, you come to have the view that "I am here, and I am looking at the coffee cup seen before my eyes." In other words, you would be thinking that there is the relationship of "my

body acting to look" and "the coffee cup I am looking" between "your body seen before your eyes" and "the coffee cup seen before your eyes".

However, it is not correct. It is the relationship between "your apparent physical body" and "the apparent coffee cup", not the relationship between "your body acting to look" and "the object you are looking". In the first place, light does not exist in the world seen before our eyes, let alone travel from the coffee cup to our eyes in the world seen before our eyes.

Though, you might make a rebuttal; "If we look at a intense light such as a lamp we are dazzled." But it is because intense light hits the eyes of our physical body, not because it hits the eyes of our apparent physical body.

You must be thinking that you are looking at the coffee cup seen before your eyes, but it is not correct. The coffee cup seen before your eyes is not "the object you are looking" but "the result of looking". It is impossible to look at "the result of looking". The coffee cup seen before your eyes exists there as "the result of looking".

If you turn your eyes to the outside of a window, you will see houses, trees and the sky there. It is not correct to think that you are looking at them. They exist there as "the results of looking", and they are the psychological phenomena.

Our view, "I am looking at an object", is a wrong conviction which originates in our thought that "the body seen before our eyes is a physical body". It seems to be, as it were, "a hard trick", because

it convinces us as if we were looking at the objects seen before our eyes.

The fact that "it is impossible to look at the results of looking" leads us to another important view about recognition. It will be explained in the paragraph 2 of Chapter 4.

Answer to the problem of an inverted retinal image

The problem of "an inverted retinal image" was examined in the previous paragraph. And it was suggested that the reason why we feel some doubt about this problem is that we interpret "the objects seen before our eyes" not as "the objects we are looking" but as "the results of looking".

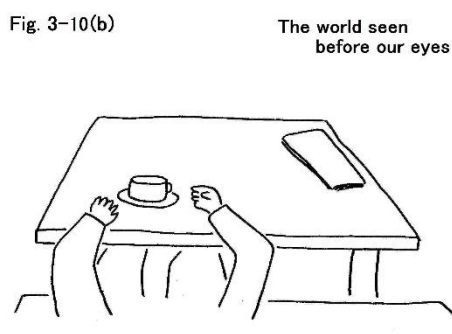
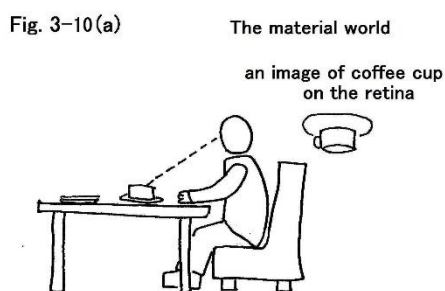
It is certainly correct, but in addition to it, our doubt relates to the interpretation of our body. Namely, in order to answer the doubt, "Why is the external world not seen upside down?", it is

necessary to clarify what we assume as "the result of looking", and what we assume as "the retinal image".

Let's examine the subject by setting a situation that the person in the picture of Figure 3.10(a) and (b) is feeling some doubt about the problem of an inverted retinal image. The picture of Figure 3.10(a) is "the material world", and it shows an inverted image of a coffee cup which is focused into his retinas. On the other hand, the picture of Figure 3.10(b) shows "the world seen before his eyes", that is, "the apparent material world".

For the person, "the result of looking at the coffee cup" must be "the cup seen before his eyes" in the picture of Figure 3.10(b). It is because he has some doubt about the problem of an inverted retinal image, and "the coffee cup as the result of looking" must be upright to him.

Though he usually interprets the coffee cup seen before his eyes as "the object he is looking", he is now interpreting it as "the result of looking", because he has some doubts about the problem. Since the coffee cup seen before his eyes is originally "the result of looking", his interpretation is correct in this situation.



On the other hand, "the retinal image" with which he should compare ought to be the inverted image at his retinas in the picture of Figure 3.10(a). In fact, he must be thinking so. However, the body he thinks to be his body is not the physical body in Figure 3.10(a) but the apparent physical body in Figure 3.10(b).

Of course, his apparent physical body seen before his eyes is quite different from his physical body. He is assuming that an inverted retinal image of the coffee cup exists at his apparent retinas which do not exist originally, and he is comparing it with the coffee cup seen before his eyes which is seen upright. As a result, he comes to feel the following doubt: Why is "the coffee cup seen before my eyes" seen upright though the image at my retinas is inverted?

The main reason why we have some doubt about the problem is that though we interpret the objects seen before our eyes as "the results of looking", we do not notice that our body seen before our eyes is also "the result of looking", namely, the apparent physical body.

By the way, the story becomes complex. We feel some doubt about this problem because we think the coffee cup seen before our eyes as "the result of looking", but we are surely thinking it as "the object we are looking" as well. It is because since we think the world seen before our eyes is the material world, a coffee cup which creates an inverted image on our retinas must exist in the world seen before our eyes and it must be upright. The cup which meets the condition is the very coffee cup which exists in the world seen before our eyes, which is drawn in the picture of Figure 3.10(b).

The coffee cup seen before our eyes is interpreted as "the object we are looking" as well as "the result of looking". Namely, the coffee cup seen before our eyes has dual meanings.

The problem of an inverted retinal image is not a mysterious phenomenon. Since our body seen before our eyes is not the physical body but an apparent physical body, there are not any retinas at the apparent physical body. Therefore, the objects in the material world do not produce their inverted images on the retinas of the apparent physical body. In a word, any retinal image which ought to be compared with the object seen before our eyes doesn't exist at the retinas of the apparent physical body which do not exist originally.

Summary of this paragraph

Our physical body certainly exists in the material world, but our body seen before our eyes is not a physical body but an apparent physical body.

We have a view that "I am here, and I am looking at an object". However, it is a trick, and wrong. The trick originates in our wrong conviction that our body seen before our eyes is a physical body.

Though we think that "I am looking at the objects seen before my eyes", it is impossible to look at the objects seen before our eyes, because they are "the results of looking". The objects seen before our eyes exist there as "the results of looking".

Chapter 4 : Where is the mind?

Paragraph 1 Where is the mind?

Summary of the story up to now

At first, you would have thought the question, "Where is the mind?", was vague and difficult to answer. However, from the story up to now, you might have thought that we can answer the question.

The material world certainly exists. And, there surely exist various objects and physical bodies which are composed of matter in the material world. However, "the world seen before our eyes" is not the material world and "the objects seen before our eyes" are not matter, though they are assumed to be the material world and matter based on common knowledge. They are, so to speak, the apparent material world and apparent objects.

Moreover, "our body seen before our eyes" is not a physical body but an apparent physical body. All of them are the existences in our mind, as will be explained from now on.

The subtitle of this paper is "A hard trick set by the brain". There are some tricks concerning the world of mind, but the hardest one is our wrong conviction that "I am here, and I am looking at an object". It originates in our wrong interpretation about our body seen before our eyes, and as a result it becomes difficult for us to understand the true feature of the world of mind.

If compared with the card trick which was shown in paragraph 2 of Chapter 1, our wrong conviction is the same as the situation we cannot see through the trick by being caught in the wrong belief,

namely, "the card is being kept by the juggler's left hand turned to his back".

However, there are surely some split seams in the trick even if it is so hard.

The fact that "the objects seen before our eyes" are not "the objects we are looking" but "the results of looking" is a clue which sees through the trick.

"The act of looking" was defined by the following diagram: the object we are looking (matter) → the body acting to look (physical body) → the result of looking (psychological phenomenon).

The objects seen before our eyes are thought to be "the objects we are looking", which is common knowledge, but it is not correct. They are "the results of looking". For example, as for "the act of looking at a coffee cup", "the object we are looking" is the coffee cup (matter), "the body acting to look" is our physical body and "the result of looking" is the coffee cup seen before our eyes.

You would be thinking that "I am looking at the coffee cup seen before my eyes", but it is not correct. There is not the relationship of "the body acting to look" and "the object you are looking" between "your body seen before your eyes" and "the coffee cup seen before your eyes".

In other words, it is impossible that you look at "the coffee cup seen before your eyes". It is because the coffee cup seen before your eyes is "the result of looking at the coffee cup", and therefore, it is impossible for you to look at "the result of looking". The coffee cup seen before your eyes exists there as "the result of looking".

"The results of looking" are not physical phenomena but psychological phenomena, because they appear in the world seen before our eyes only after the information about the external world is transmitted to our cerebrum and processed there. The objects seen before our eyes are not matter but apparent matter, and the world seen before our eyes where apparent matter exists is not the material world but the apparent material world. Namely, the objects seen before our eyes are psychological phenomena, and the world seen before our eyes is also the psychological phenomenon. Therefore, if the results of information processing about the external world are clarified, we will be able to know the outline of the world of mind.

Results of information processing about the external world

The results which are obtained after the information processing about the external world are not only "the results of looking". The same logic which has been pursued on "the act of looking" can also

apply to other sensations.

The results obtained by "the act we are listening", or in short, "the act of listening", are the sounds themselves which are being heard exactly now. Though the air vibrations corresponding to the sounds such as persons' voice, sound of cars and a TV sound certainly exist in the material world, these sounds which are being heard now are not the air vibrations themselves.

The air vibrations which have reached our ears trace a series of processes, such as the eardrum, the ossiculoplasty, the front yard floor, the scala tympani, the basement membranes and Corti's organs, and are converted into the electrical signals by the auditory cells of Corti's organ. Further, they reach the aural territory of the cerebrum through the auditory nerves, and eventually the sounds are created as a result of processing of the signals.

It is not correct to think that we are listening to the voice of a person. It is "the result of listening" which has been obtained by "the act of listening to the person", and it exists just at the person's mouth where it is being heard now.

It is not correct to think that we are listening to the sound of a piano. The sound of the piano exists just at the musical instruments as "the result of listening" through "the act of listening to the piano". It is the same as the case of "the act of looking", namely, we are not looking at the object seen before our eyes, but the object itself exists there.

The same explanation can also apply to the sensations such as weight, hardness and warmth etc. For example, when we hold a coffee cup, we feel sensations such as weight, hardness, warmth and smell, etc. They are all the results of information processing about the external world, and they are not physical phenomena but psychological phenomena. It is not correct to think that we feel such sensations, but, they, such sensations, exist there as the results of information processing.

Definition of the words, "mind" and "consciousness"

Let's define the words, "mind" and "consciousness", concisely before answering the problem of "Where is the mind?", though these words have been used up to now without being defined. We had better not get deeply involved in it, because neither mind nor consciousness has fully been understood yet. It seems to be enough if it could support the answer to the question.

First of all, it is necessary to decide how to deal with "the mind as common knowledge" before

defining them. The mind as common knowledge is thought to exist behind the face of our apparent physical body, and to play such roles as intellect, emotion and volition. However, as clarified by the story up to now, the true feature of the mind is quite different from that of common knowledge. Therefore, it is necessary to define "the mind as common knowledge" so as we can tell it from the mind which this paper shows, because we need to refer to "the mind as common knowledge" from now on, too.

It seems to be appropriate to name "the mind as common knowledge" "the apparent mind", because of the same reason that the body seen before our eyes was named as "an apparent physical body". In fact, the word, "the apparent mind", is going to be used in paragraph 3 of Chapter 4.

Certainly, when we consider the existence of "I", it would be appropriate to express "the mind as common knowledge" as "the apparent mind". However, though there exists a physical body in the material world which corresponds to an apparent physical body, there does not exist anything in the material world which corresponds to the apparent mind. In addition to it, the mind as common knowledge is surely part of the mind, though it is not the world of mind itself.

Judging from these points of view, it does not seem to be suitable to name "the mind as common knowledge" "the apparent mind". Therefore, it will be expressed as "the so-called mind" hereafter, though it might seem not to be suitable a little.

Phenomena of being conscious

It is difficult to define consciousness itself, as well as it is difficult to answer such questions as "What is matter?" or "What is space?" Therefore, let's substitute "phenomena of being conscious" for "consciousness", and clarify "the phenomena of being conscious".

We are apt to associate the word "consciousness" with the phenomena of being occurring in "the so-called mind", and as a result we come to think it as something vague. However, it is possible to define "phenomena of being conscious" more concretely, at least in the world seen before our eyes.

First of all, the results obtained through sense organs such as eyes, ears and skin can be included in "the phenomena of being conscious." Namely, they are the phenomena which are being seen, heard and felt.

"The phenomena which are being seen" are the very objects seen before our eyes. For example, when we turn our eyes to a coffee cup in order to drink coffee, the coffee cup, the table and our arms,

which are seen before our eyes, are all "the phenomena of being seen".

"The phenomena which are being heard" are the sounds of being heard in our surroundings exactly now. For example, when we are going to drink coffee, there occurs a faint sound of clothes due to our arm's movement, a sound of a cup rubbing with a plate and a sound of sipping coffee. They are "all the phenomena of being heard".

"The phenomena which are being felt" are the sensations produced at the surface and inside of our body. For example, when we hold a coffee cup, we feel the weight, the hardness and the warmth of the cup at our palm. They are all "the phenomena of being felt".

Additionally, the smell, the bitter and the sweetness of coffee are also "the phenomena of being conscious".

The phenomena which are being seen, heard and felt are the results of the act of looking, listening, and feeling respectively. Therefore, they are all "the phenomena of being conscious". Namely, the coffee cup seen before our eyes, a sound of a cup rubbing with a plate, and the warmth of the coffee cup felt at our palm are all "the phenomena of being conscious".

"The phenomena of being conscious", which have been mentioned right now, have corresponding physical phenomena in the material world. For example, "the coffee cup seen before our eyes" has its corresponding coffee cup in the material world, and a sound of a cup rubbing with a plate has its corresponding air vibration in the material world.

In addition to them, "the phenomena of being thinking" and "feelings" also belong to "the phenomena of being conscious". For example, a vague image of an apple which appears in "the so-called mind" when we hear the word "an apple", the vague numbers which appear in "the so-called mind" when we are making a mental count, and the relaxed feeling which is produced in "the so-called mind" when we are drinking a favorite coffee, are "the phenomena of being conscious" as well.

"The phenomena of being seen" and "the phenomena of being heard" are the matters outside our apparent physical body, and "smell" and "taste" are the matters relating to our apparent physical body. On the other hand, "the phenomena of being thinking" and "feelings" are the matters in "the so-called mind".

As for the consciousness, we are apt to think it to be extremely abstract. Certainly, images in "the so-called mind" and "feelings" are vague. However, there are such many concrete phenomena as the

objects seen before our eyes, the sounds of being heard, and the weight, etc.

The world of mind

Next, let's define the word "mind" concisely. When defining the word "mind", it is the most important whether the information processing by the brain should be included in the mind or not. The reason will be understood if we examine what image we have about "the mind as common knowledge."

We think that "I" am composed of "the mind" and "the body" and do psychological activities such as looking, hearing, thinking and speaking. And, we are sure that "the body" is a material trait and "the mind" is a non-material trait. In a word, though we think that the mind has a close relationship with the information processing of the brain, we are apt to think that the mind is a non-material phenomenon and the mind should be dealt with by being separated from the information processing of the brain.

On the other hand, it is also true that when thinking about the mind carefully, it is impossible to understand the mind without including the information processing of the brain in the mind.

There are perception, memory, learning, thought, language, emotion and intention, etc., as the functions of the mind. They all are backed up by the information processing of the brain. When taking up "the act of looking" among perceptions, for example, though it is clear that "the objects seen before our eyes" are the results of "the act of looking" and non-material phenomena, it is also clear that the information processing by the brain supports "the act of looking". Namely, it is impossible to mention "the act of looking" without referring to the backup of the brain.

Or, when taking up "thinking" as another example, the same view can also apply to it. Though it is true that when we are thinking of something the content of thinking is being conscious, it is also true that there is the information processing of the brain which supports our thinking in the background. If we think of a person who owes a brain damage, we will be able to understand it easily.

Psychology seems to have been studying directly mind and consciousness as the name of "psychology" shows, but it has not been studying them because of the historical reason. It has regarded the mind as a "black box", and has tried to clarify the mechanism of the mind from the

relationship between the stimulus at the entrance and the response at the exit. The "black box" means the mechanism of the information processing of the brain itself.

The reason why psychology has not dealt with mind and consciousness is that they have been assumed to be too abstract to be the subject of science. However, as you would have understood from the story up to now, mind and consciousness are quite different from those of common knowledge. Though the mind has certainly the abstract parts such as intellect, emotion, and volition, it also has the concrete parts such as the objects seen before our eyes and the sounds being heard around us, etc. Science has not studied the non-material traits of mind and consciousness up to now, but it seems indispensable to study these phenomena to clarify the mind.

Considering these facts, it becomes clear that when defining the mind it is important to note the following two factors: "the information processing of the brain" and "the phenomena of being conscious". Namely, there are two kinds of definition about the mind on how to deal with these two factors.

One of them is a standpoint which deals with only "the phenomena of being conscious" as the mind, and the other is one which deals with both "the phenomena being conscious" and "the information processing of the brain".

There might be a standpoint which deals with only "the information processing of the brain" as the mind, but it is excluded in this paper. It is because this paper has been insisting that it is indispensable to take the phenomena of being conscious into consideration to clarify the true feature of the mind.

The mind in a narrow sense and in a wide sense

Taking such a viewpoint into consideration, let's define the mind which deals with only "the phenomena of being conscious" as "the mind in a narrow sense". Therefore, all of "the phenomena of being conscious", which were mentioned above, belong to "the mind in a narrow sense". Namely, "the phenomena of being seen", "the phenomena of being heard", and "the phenomena of being felt", and moreover, "the phenomena of thinking", and "emotion", etc., are included in "the mind in a narrow sense".

On the other hand, let's define the mind which deals with both of "the phenomena of being conscious" and "the information processing of the brain" as "the mind in a wide sense".

The purpose of this paper is to answer the question "Where is the mind?" Therefore, it is desirable to discuss "the information processing of the brain" in addition to "the phenomena of being conscious" to clarify the world of mind. Though, this paper is going to discuss only "the mind in a narrow sense". Even so, the answer to the question will surely become a big opportunity to reconsider "the mind as common knowledge".

By the way, not only the word "the mind" but also "the world of mind" has been used until now and will be used from now on. Please interpret they are the same meaning.

Answer to the question, "Where is the mind?"

From the story which has been pursued until now, especially the story of Chapter 3, you might have already understood that the world of mind is quite different from that of common knowledge. Our wrong interpretation about "our body seen before our eyes" is the very cause that makes it difficult to realize the true feature of the mind. Namely, we interpret it as our physical body, and as a result, we reach the view that the mind exists behind our face of the apparent physical body and is abstract and vague.

Now, let's confirm "where the mind is?" by assuming that you are sitting at a table, and drinking coffee in a familiar coffee shop. First of all, please close your eyes. As soon as you close your eyes, all objects which have been seen till now disappear, and your surroundings will change into monotonous and gray tone.

Though, you can hear various sounds as usual from your surroundings. By the direction and the distance of the sounds, you can know that there is a wide space around you. In addition, you can know the rough image of your body by the sensations from your head, arms and feet, etc.

On the other hand, you will be able to feel something which is continuously changing at the part of "your so-called mind". When we communicate with people we voice our words, and when we think something in "the so-called mind," we don't voice our words. The former is called "vocal speech," and the latter is called "subvocal speech."

Some activities are being performed by the subvocal speech at "your so-called mind". For example, the brand of coffee which you will newly buy, the result of game of your favorite baseball team, the

arrangements of tomorrow's work, etc. They are vague images and thoughts. In a word, they are abstract parts of your mind, such as intellect, emotion, and volition, and they are located behind the face of your apparent physical body.

Now, please open your eyes. The world which has been light gray till now changes into being colorful, and it stretches out in front of you. It is the world which has been expressed as "the world seen before your eyes", or "the apparent material world". It is also the world of your mind. The table, the coffee cup, the newspaper, the wall, the floor and the ceiling seen before your eyes are all apparent matter, and they are the events in the world of your mind, and they exist in the world of your mind.

When you pull your eyes towards you, you will see your hands and knees there. It is not your physical body but "your apparent physical body", and it also belongs to the world of your mind.

Since your "so-called mind" is assumed to be located behind the face of your apparent physical body, it can be said that your "so-called mind" and "your apparent physical body" exist in "the world of your mind". It seems to be a nested structure, and it might remind us of an emboitement state.

As told in paragraph 1 of Chapter 1, when you are enjoying the early spring on a little hill by the sea, everything seen before your eyes is an event in the world of your mind. The sea, the sky, the condensation trail, the sandy slope, the elderly person, the child who is waving its hand toward you, and even you yourself are all the events in the world of your mind. A seagull gracefully soaring above your head against the blue sky is flying in the world of your mind. The world of your mind is so vast as to be worthy of being called a microcosm.

The answer to the question "Where is the mind?" is that the world seen before your eyes, including yourself, is the world of your mind.

Appearance and disappearance of "the world of mind"

The world of mind does not always exist. When we are awake, it keeps existing because we are being conscious. However, when sleeping, it doesn't exist except dreaming, because of not being conscious. When waking up, it appears again. The world of mind repeats appearance and disappearance. Though, it would not mean that it is created out of nothing or is extinguished to nothing.

Appearance and disappearance occur not only on the whole world of the mind but also occurs partially. When we close our eyes, for example, we say that "I cannot see a coffee cup". Certainly,

when we close our eyes, the light reflected at "the coffee cup we are looking (matter)" is interrupted by the eyelids of our physical body and it cannot reach our retinas. Therefore, it is reasonable if we express in a context of the material world, "I cannot see a coffee cup". However, we use the expression, as a matter of fact, in the world seen before our eyes.

As told in paragraph 4 of Chapter 3, the coffee cup seen before our eyes is "the result of looking", and it is impossible to look at "the result of looking". Therefore, it is not correct to use the expression, "I cannot see a coffee cup", in the apparent material world, that is, in the world of mind. A correct expression is that "A coffee cup has disappeared".

The expression, "I can see a coffee cup when I open my eyes", is not correct, either. The correct one is that "A coffee cup has appeared".

When we turn our physical eyes to an object in the material world, our apparent eyes are also turned to the apparent object in the world seen before our eyes by the system of synchronization, and as a result we will be able to see the apparent object and will not be able to see other apparent objects. However, as has told now, it means that some objects appear and some other objects disappear in the world seen before our eyes.

By tracing our memory, we can remember various things in our "so-called mind". Similarly, by turning our eyes to some objects in the world seen before our eyes, it is possible to make them appear in the world of our mind.

Doubts about the world of mind and supplementary explanation to them

You would have felt various doubts about the answer to the question, "Where is the mind?". Let's take up the following three doubts, and make supplementary explanation to them.

Doubt 1: Why is the coffee cup seen before my eyes the existence in the world of my mind?

Answer: If you are standing on the common knowledge that the mind is "the so-called mind" located behind the face of your apparent physical body, you would not consent to the answer to "Where is the mind?" Your doubt would be shown by a single phrase, namely, "Why are the coffee cup and the wall, etc., seen before my eyes the existences in the world of my mind?" You must be thinking; "The mind is advanced mental activities such as intellect, emotion and volition. The mind cannot be the

same as the coffee cup and the wall, etc., seen before my eyes, which are just trivial".

If the answer to your doubt is going to be explained logically, the story until now will be repeated. Namely, the explanation, "The objects seen before our eyes are the results of looking, and they do not belong to the material world but to the world of mind", will be repeated. Therefore, let's explain from another angle that the coffee cup and the wall, etc., seen before our eyes are psychological phenomena and belong to the world of mind.

Do you know a "ferret"? It is curious and playful. We feel it to be lovely when we see it taking a snap peacefully. Though the feeling of loveliness is located at the part of our "so-called mind", at the same time, the feeling belongs to the ferret itself seen before our eyes. In a word, the ferret seen before our eyes is not a mere apparent object but the existence which is being accompanied by the feeling of loveliness. That a ferret seen before our eyes is being accompanied by such a feeling means that it is the existence in the world of our mind. The same logic can apply to puppies, kitties, and of course, small children.

A knife pulled out from a sheath has a peculiar impression, that is, an overpowering impression. The blade sending dim lights, the point with sharpness and the thick back have a strong presence. Though the strong presence occurs in our "so-called mind", it belongs to the knife itself seen before our eyes at the same time. It is because the knife seen before our eyes is the psychological phenomenon as "the result of looking" and exists in the world of our mind.

Have you ever seen the sunrise from a top of a high mountain? It repeats itself every day, but it makes a deep impression on us all. The spectacle of the bright eastern sky and the golden lights shooting in all directions gives us even the feeling of divineness which reminds us of the Creation. Though the impression is the feeling in our "so-called mind", at the same time, it does belong to the sunrise itself seen before our eyes, because the sun is rising in the world of our mind.

The coffee cup and the wall of a room seen before our eyes would be far less impressive than the examples which have been mentioned now, but they are also the existences in the world of our mind.

If you have come to be convinced that the world seen before your eyes is the world of your mind, you would be able to understand that the smoothness felt at the tip of a pencil, and the sensation of touch felt at your cheek reflected in a mirror, which were told in paragraph 2 of Chapter 3, are not strange any more. The pencil seen before your eyes and your cheek reflected in a mirror are the same

kind of phenomena in the world of your mind as well as the sensations which are produced at the tip of a pencil and at your cheek reflected in a mirror.

Doubt 2: "The so-called mind" is a special existence, isn't it?

Answer: You might think "the so-called mind" is a special existence because common knowledge assumes that it rules intellect, emotion and volition. It is certainly true that intellect, emotion and volition are the special functions, because they have a close relationship with the higher order information processing. However, the meaning of "special" is referring to the specificity of the information processing of the brain.

As mentioned at the clause of "Definition of the words mind and consciousness", we are pursuing the subject from the standpoint which does not treat the information processing of the brain but only the phenomena of being conscious. Judging from the standpoint, "the so-called mind" is not different at all from a coffee cup seen before our eyes concerning its characteristic. "The so-called mind" and "a coffee cup seen before our eyes" are the same kind of existence with each other on the viewpoint of "existence". Namely, "the coffee cup seen before our eyes" is accompanied by the meaning of "a cup for drinking coffee" and is located just at the position which is seen before our eyes as a result of information processing.

On the other hand, "the so-called mind" is accompanied by the meaning of ruling the intellect, emotion and volition, and is located behind the face of the apparent physical body as a result of information processing of the brain concerning intellect, emotion and volition.

If the information processing is taken into consideration, a coffee cup seen before our eyes and intellect, emotion and volition are certainly different from each other and they are the special existences respectively. However, judging from the viewpoint of "the psychological phenomena", "the so-called mind" is the same as a coffee cup seen before our eyes, because both of them are the results of information processing.

There is, as a matter of course, a reason why "the so-called mind" is assumed to be located behind the face of our apparent physical body. It is based on the view that the mind is the center of the information processing, and as a result, we come to have the thought that "I am here, and I am looking at the objects seen before my eyes".

If we are asked, "Where do you think "you" who are looking around the external world locate?", we would answer, "It is the opposite direction of our sight line". It is comprehensible for you if you think it from your viewpoint.

The world seen before our eyes changes synchronizing with the movement of our sight line because it is based on the image of our retinas. Therefore, it is our eyes that become the cardinal point at this situation, and it is reasonable for us to think that "I" who am looking at the external world am located behind the face of our apparent physical body.

It would be the reason why "the so-called mind" is assumed to be located behind the face of the apparent physical body. In a word, as known from the expression that "I am here, and I am looking at the objects", "the so-called mind" is located at the place where we think we are looking at the external world.

It is said that the mind was once thought to be locating at the heart, but it would be about emotion among intellect, emotion and volition. Actually, all the expressions such as "My heart leaped at the news", "My heart almost burst with grief", and "He has a strong heart" relate to emotion.

Doubt 3: Why does "the so-called mind" exist in the world of mind?

Answer: "The so-called mind" is the mind as common knowledge, and it is different from the true mind. It exists in the world of mind, and so it looks like "a nested structure" a little. Therefore, you would feel doubt: "Why does "the so-called mind" exist in the world of mind?"

To answer the doubt, it is necessary to wait for the answer to the question: What am I? That is because what exist in the world of mind are not only "the so-called mind" but also the apparent physical body, and even "I" exist in the world of mind.

This problem will be taken up in the paragraph 3 of Chapter 4, "Why do "I" exist in the world of mind?", and will be explained.

Summary of this paragraph

Our body seen before our eyes is "an apparent physical body", and the world seen before our eyes is "the apparent material world". They all exist there as a result of the information processing of the brain.

The answer to the question "Where is the mind?" is that the world seen before our eyes, including our own body seen before our eyes, is the world of mind.

"The so-called mind" as common knowledge which is assumed to rule intellect, emotion and volition exists in the world of mind together with the apparent physical body.

Chapter 4 :

Paragraph 2 Mind and Recognition

Problem of recognition

Until now, we have pursued the subjects to find the answer to the question, "Where is the mind?" It is necessary for us to refer to "recognition" to clarify the world of mind. Namely, we have mainly analyzed "the act of looking" up to now, but another hard problem, "How is the external world recognized by the act of looking?", has still been remained.

Let's think about, for example, how a coffee cup is recognized by the act of looking. If it is a machine like a humanoid robot, and it selects "a coffee cup" among some choices as a result of the information processing, it can be said that the machine has succeeded in getting a right answer. However, if it is a human being who does conscious activities, the problem, "How is the coffee cup recognized?", remains unsolved.

The information from the external world is sent to the brain, and processed there, and as a result, a coffee cup appears in the world seen before our eyes as "the result of looking". However, how the coffee cup seen before our eyes relates to the recognition of the cup remains as an unsolved problem.

There is a word "Descartes' dwarf", which ridicules the dualism of Descartes. He is said to have had a view that the information of the external world was carried to the pineal gland, which looks like a pinecone, and the external world was recognized there.

However, his idea could not explain "recognition", because he only assumed that the information of the external world was carried to the pineal gland. People criticized his idea, saying that a strange person, "Descartes' dwarf", who recognizes the information of the external world, must exist in the brain to explain recognition.

Judging from the level of physiology at that time, it might be natural that his idea was such a level. Even today when the system of the brain is gradually being clarified, the problem, "What is recognition?", still remains as a mystery.

It might not be a perfect answer to the problem of recognition, but we can obtain an important fact by moving forward with the analysis of "the act of looking" which we have pursued up to now. It is the relationship between "the result of looking" obtained by the act of looking and "recognition".

The conclusion which was obtained in paragraph 3 of chapter 3, the object seen before our eyes is not "the object we are looking" but "the result of looking", plays an important role in the analysis of recognition.

Definition of the word "recognition"

First of all, let's define "recognition" concisely. It is not such a precise definition as that of philosophy. It is only a proposal to classify recognition into two levels, and to pursue the subject. Namely, for convenience's sake we will base on an assumption that there are two levels on recognition; "the high-level recognition" and "the low-level recognition."

"The high-level recognition" means that we can understand what objects or events seen before our eyes are. For example, we can understand who the person is, what time it is, and what the word "society" means, etc.

On the other hand, "the low-level recognition" means that we can know the existence of the objects seen before our eyes whether we can understand what they are. For example, when we see a coffee cup before our eyes we can know the existence of the cup whether we understand what it is for. Or, when we hear a certain foreign language being spoken, even if we do not understand what the meaning is, we can know the existence of the sound.

In this paper, we are going to examine only "the low-level recognition". In a word, the subjects will be restricted to the low-level recognition that we can know the existence of the objects seen before our eyes. Though it is so, it surely leads us to an important result about recognition which is the subject of this paragraph.

Concerning the wording of recognition, the following three verbs will be used; "recognize", "understand" and "know". These three words will be used as being synonymous, though the word

"recognize" will be used mainly for the high-level recognition, "know" mainly for the low-level recognition, and "understand" for both of them.

A trick: I look at an object seen before my eyes, and I come to know the existence.

As clarified in paragraph 4 of Chapter 3, our common view that "I am here and I am looking at an object" is a hard trick, and makes it difficult for us to understand that the body seen before our eyes is the apparent physical body and the world seen before our eyes is the apparent material world.

On the other hand, our thought that "I look at an object seen before my eyes, and I come to know the existence" becomes another hard trick concerning "recognition", and makes it difficult for us to realize the true feature of recognition.

As understood by the expression, we assume that we come to know "the existence of the objects seen before our eyes" after "the information about the objects seen before our eyes" is taken into the "so-called mind". As a result, we come to have the view that "recognition" is abstract.

Though there are certainly such abstract parts in the mind as intellect, emotion, and volition, as mentioned in the previous chapters, there are also concrete parts such as a coffee cup, a desk and a wall, etc., seen before our eyes. Similarly, there are also concrete parts concerning recognition.

There are two steps in recognition?

Now, let's examine the following expression: "I look at an object seen before my eyes, and I come to know the existence." There are two steps in this expression, namely, the first step is "I look at an object seen before my eyes", and the second step is "I come to know the existence". In other words, it means that "I can know the existence of the object seen before my eyes after I looked at it".

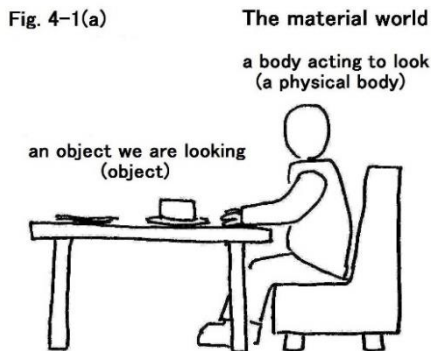
You would think: "It is natural. How can we know the existence of the object without looking at it?" However, a trick about recognition lurks in this conviction of ours.

Let's think about the expression in a situation where we are looking at a coffee cup. The act of looking at a coffee cup can be shown by the following process. There is a coffee cup (the object we are looking) in the material world. Light which is reflected by the cup reaches our retinas, and it focuses on the retinas. The images on the retinas are changed into electrical signals and transmitted to the cerebral cortex and processed there (the body of looking). As a result, a coffee cup (the result

of looking) is seen before our eyes.

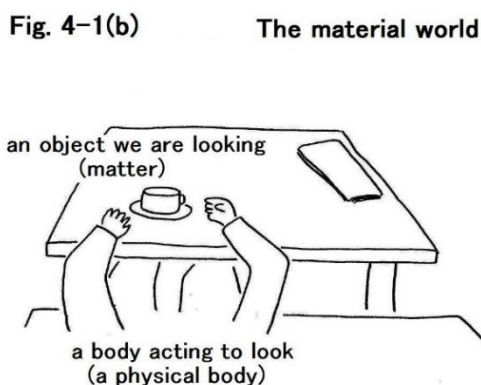
(1) In the material world

At first, let's think about "the act of looking at a coffee cup" in the material world. Figure 4.1(a) and (b) show the material world from the side, and from the observer's eyes respectively. The first step



of the expression, "I look at a coffee cup", means that light transmits from a coffee cup to the physical body and focuses into the image of the cup at the retinas. Since the coffee cup is "the object we are looking (matter)" and the body is "the body acting to look (a physical body)", the first step, "I look at a coffee cup", can be confirmed in this situation. It is undoubtedly correct.

Next, what does the second step mean?; "I come to know the existence of the coffee cup." It has been known that the information from the retinas arrives at the visual cortex at the back of the cerebrum and finally reaches the visual association cortex of the frontal lobe by tracing two routes.



However, it does not explain how the coffee cup is recognized, that is, "How do I come to know the existence of the coffee cup?"

Descartes assumed that the visual information of the external world was carried to the pineal gland and was recognized there. The visual cortex and the visual association cortex are certainly the areas which process the visual information, but it does not explain how the external world is recognized, because the pineal gland is only paraphrased by the visual cortex and the visual association cortex.

We cannot take in any information from the external world without the first step, "I look at an object", namely, "the object we are looking (matter) → the body acting to look (a physical body)". Therefore, it is an indispensable step for recognition, but it does not directly connect to recognition itself. It would be comprehensible if we think about a dream. Even if the first step, "I look at an object", is not

carried out, we can know the content of our dream.

We analyzed in paragraph 4 of Chapter 3 the mechanism of the trick lurking in our conviction that "I am here, and I am looking at an object". It is true that I am in the material world (the existence of the physical body) and it is also true that I am looking at an object which exists in the material world (the transmission of the information about the external world by light and electrical signals).

However, the true feature of "I" shown in the expression must be "I" which exist in the world seen before our eyes, being accompanied by "the apparent physical body". We assume that the apparent physical body is the physical body existing in the material world, and moreover, we are wrongly convinced that the world seen before our eyes must be the material world. As a result, it leads us to the following view: "I am here being accompanied by my physical body, and since I am looking at an object seen before my eyes, it must be matter."

(2) In the apparent material world

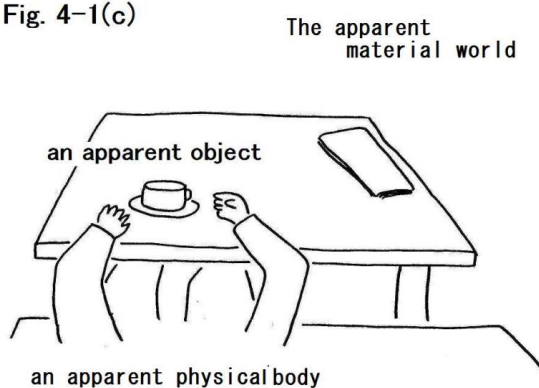
The reason why we have the view, "I look at an object seen before my eyes, and I come to know the existence", is the same as the logic which has been mentioned now. Namely, we assume the world seen before our eyes is the material world, and as a result, we come to interpret "I" who am looking at the object and know the existence" as "I" who am accompanied by the physical body in the material world". However, as a matter of fact, "I" shown in the expression is "I" that am accompanied by the apparent physical body in the apparent material world.

It was proved in the previous paragraph 4 Chapter 3 that "I am here, and I am looking at an object" is an event in the world seen before our eyes, not in the material world. Similarly, it will become the key point of seeing through the trick about recognition; "I look at an object seen before my eyes, and I come to know the existence" is an event of the apparent material world, not of the material world.

With those introductory remarks, let's examine the view that "I look at an object seen before my eyes, and I come to know the existence" in the world seen before our eyes by using the picture of Figure 4.1(c).

As common knowledge shows, we think that the coffee cup seen before our eyes is "the object I am looking (matter)", and the body seen before our eyes is "the body acting to look (a physical body)". Namely, the view that "I am looking at an object seen before our eyes" is assumed to be reasonable

Fig. 4-1(c)



even in the world seen before our eyes. However, it is not correct, as had already been clarified in paragraph 4 of Chapter 3.

In the world seen before our eyes, the relationship between "the objects we are looking" and "the body acting to look" cannot be defined. It is because, in the world seen before our eyes, the coffee cup seen before

our eyes is an apparent object and the body seen before our eyes is an apparent physical body. Any light and retinas do not exist in the apparent material world, and of course any images do not exist on the apparent retinas which do not exist originally. It is impossible that light travels from "an apparent object" to "an apparent physical body".

There is no causal relationship of "the objects we are looking" and "the body acting to look" between "the objects seen before our eyes" and "the apparent physical body". In a word, the act of looking, namely, "I look at an object seen before my eyes" does not occur in the world seen before our eyes. Nevertheless, we use the expression: "I look at an object seen before my eyes, and I come to know the existence." The trick about recognition lurks in this expression.

Let's explain it from another angle by using the picture of Figure 4.1(c) again, which shows the world seen before our eyes. You would be thinking that you come to recognize the existence of the coffee cup since you are looking at the cup seen before your eyes. However, it is not correct in reality.

The body seen before your eyes, which you are thinking to be your physical body, is "an apparent physical body", and the coffee cup which you think you are looking at is "an apparent cup". A causal relationship of "the body acting to look" and "the object you are looking" doesn't exist there. The coffee cup seen before your eyes exists there as "the result of looking". It is wrong to think that you are looking at the coffee cup seen before your eyes. In fact, it is impossible for you to look at "the result of looking".

The coffee cup seen before your eyes is "existence", and "recognition" as well, because you are able to know the existence of the cup though you are not looking at it.

"A coffee cup does not exist before your eyes?"

"Yes, it exists there."

"You are looking at the coffee cup?"

"No, I am not looking at it.

"You do not know that a coffee cup exists before your eyes?"

"Yes, I know it."

Since you are able to know the existence of a coffee cup though you are not looking at it, the coffee cup seen before your eyes is "existence" and at the same time it is "recognition".

Our view that "I am looking at an object seen before my eyes" is one of the causes that lead us to the misunderstanding of "recognition". The recognition of the low-level might be different from that of the high-level, but it is impossible to assume that "I look at an object seen before my eyes, and I come to know the existence", concerning the low-level recognition at least. It is recognition that objects exist in the world seen before our eyes. In a word, in the world seen before our eyes, existence is also recognition.

It would be possible to reverse the order of the expression, namely, "recognition is existence as well in the world seen before our eyes". Of course, the meaning of existence in the world seen before our eyes or in the world of mind would be different from that of existence in the material world.

Though it is not clear whether being conscious is the necessary condition for knowing the existence of objects, it would be clear that being conscious is the sufficient condition for knowing the existence of objects.

It can be concluded that there do not exist two steps in recognition; "I look at an object seen before my eyes, and I come to know the existence" is impossible.

The world of mind which is considered from a point of view of "recognition"

It is wrong to think that "I look at an object seen before my eyes, and I come to know the existence". The fact is that "The object seen before our eyes is existence and at the same time recognition". It would easily be understandable that the conclusion can apply to other sensations such as sound, touch, etc. It is wrong to think that "We hear sound, and then we come to know the sound." The fact is that "The sound which is now being heard exists at the position where it is now being heard and it is the recognition of the sound at the same time."

For example, the sound of a piano playing is itself the existence, and it is itself the recognition at the same time. It is wrong to think that "We are listening to the sound of a piano which is being heard now, and as a result, we come to recognize the sound of the piano." The truth is that the sound which is being heard now is the result of "the act of listening", and it is the existence and the recognition of the sound. Our pleasant impression created by hearing a piano playing is the event in our "so-called mind", and similarly, the sound of a piano is the existence and the recognition in the world of our mind.

The same logic can also apply to the sensation of touch. It is not correct to think that "We feel the sensation of touch, and come to know it." The truth is that the sensation of touch itself exists at the position where our apparent body meets the apparent object, and it is the recognition at the same time.

We have the view that we can recognize objects after the information about them are taken from the external world (the material world) into the brain.

The view is certainly correct. However, the problem is that we are convinced the world seen before our eyes is the external world. The expression, "I look at an object seen before my eyes, and I come to know the existence", clearly shows the situation. Namely, we think that it is necessary to take the information from the "apparent external world" into the "so-called mind" once in order to recognize them, because we assume recognition is born in the "so-called mind". However, it is not correct. It is recognition as well that objects exist in the world seen before our eyes.

The common knowledge that we can recognize objects after the information about them is taken from "the apparent external world" into the "so-called mind" has an influence on the wording. As for apparent objects and sounds existing outside our apparent physical body, we say "I look at objects seen before my eyes, and I come to know the existence of the objects" or "I listen to the sound around me, and I come to know the existence of the sound." Namely, we think that the information about the apparent external world is once taken into the "so-called mind".

On the contrary, as for our feelings which are thought to be the phenomena in "the so-called mind", we never say "I feel my sadness, and I come to know my sadness", though we say "I read a person's facial expression, and I come to know the person's sadness." It is because we assume feelings such as sadness and pleasure are events in the "so-called mind", and it is unnecessary to take them into the

"so-called mind" again.

In common knowledge, feelings such as sadness, pleasure, etc., are thought to be recognition, but a coffee cup seen before our eyes is not thought to be recognition. However, if it is taken into consideration that the world seen before our eyes is the world of mind, it would not be strange that the objects existing in the world seen before our eyes are the recognition as well as the existence.

Summary of this paragraph

It is wrong to think that "I look at an object seen before my eyes, and I come to know the existence". First of all, it is impossible to look at objects seen before our eyes.

It is recognition that apparent objects exist in the world seen before our eyes. Judging from the fact that the world seen before our eyes is the world of mind, it meets the requirements of the low-level recognition at least that apparent objects exist in the world seen before our eyes.

Chapter 4

Paragraph 3 What am I?

Existence of "I"

There would be various reasons why we are interested in the mind. In the final analysis, it would be because we are interested in the question; What am I?

I am a unique existence which cannot be replaced by anything else. We have been living since a little child with the thought of "I", but it is difficult to answer the question; What am I?

By advancing the analysis about the world of mind which has been pursued up to now, we can clarify an interesting fact about this question, though it is not an enough answer to it. Namely, "I" shown by the expression, What am I?, is quite different from "I" as common knowledge. It is similar to the fact that the true feature of the mind is fundamentally different from that of common knowledge.

"I" = my mind + my body

Let's start the consideration of the existence of "I". When we think about "I", we are apt to

concentrate on "our mind". However, we must pay attention to the fact that "I" am always accompanied by "my body". In fact, it would easily be understandable if we think it about ourselves.

"I" am an existence which consists of "my mind" and "my body". If only "my body" exists without "my mind", "I" must be in a vegetative state, and "I" would not have a thought of "my body". On the contrary, if only "my mind" exists without "my body", it will become a story like paranormal phenomena, and it will go beyond the category of this paper, because this paper stands on science.

In conclusion, "I" consist of both my mind and my body, and it will be shown in the following diagram.

$$\text{"I"} = \text{my body} + \text{my mind} \quad [1]$$

In addition to it, we must pay attention to the fact that "self-consciousness" is included in "I". The concept of "self-consciousness" is a very troublesome one, and it is very difficult to define it clearly as we don't understand "I" fully. However, since we are going to obtain an answer to the question, What am I?, it is inevitable to define it.

As well as the definition of the words such as mind, consciousness and recognition, let's define the word "self-consciousness" concisely, though it would be just enough for the current subject.

If "self-consciousness" is interpreted literally, it would mean "being conscious of self", or, it would be paraphrased as "the recognition of self". Though the word "being conscious" has only been replaced by the word "recognition", this replacement would make it easier to deal with "self-consciousness".

Well, what does "the recognition of self" mean? Does it mean to recognize the existence of "my body"? Or, does it mean to recognize "my mind" which is thought to control mental activities such as perception, memory, learning, thought, language, emotion and intention, etc.? It would be appropriate to think that it means to recognize both of them, my mind and my body, considering the previous diagram; "I" = my mind + my body [1] Therefore, let's define "self consciousness" as "the recognition of both my mind and my body". Though it would not be a sufficient one, let's pursue the subject under the definition.

Reconsideration of the existence of "I"

What do we think about "my mind" and "my body" in common knowledge? Concerning "my body",

we think it to be the physical body which exists in the material world. And, "my physical body" certainly exists in the material world. The characteristics about "my physical body", such as height, weight, face, blood type, etc., are specific to each person and are different from each other.

On the other hand, we think that "my mind" is created by the brain, and is an existence of non-material. Therefore, the previous diagram [1] can be rewritten as follows.

"I" = my mind + my physical body [2]

As it is the interpretation as common knowledge, it is just the one as common knowledge.

There is no problem in defining "I" by the diagram [2]. It is true that we have our own physical body in the material world, and it would also be true that our mind is created by the brain locating in the head of our physical body. Therefore, there would be no objection in principle to define "I" by such a diagram.

However, when comparing the diagram [2] with the results which we have obtained in paragraph 2 of Chapter 4, it is doubtful if we really regard "I" as such an existence. It is necessary to reexamine the diagram [2] from the standpoint of the analysis about the world of mind which has been carried out up to now, not from common knowledge.

First of all, it is doubtful whether the body we think as "my body" is really the physical body. As mentioned now, it is certainly true that our physical body exist in the material world, and there is no problem in indicating it as "my body".

However, the body which we think as "my body" must be the body seen before our eyes. It is not the physical body existing in the material world but the apparent physical body existing in the world of mind, as had already been proved in paragraph 4 of Chapter 3. We are wrongly convinced that the apparent physical body is our physical body. We only know the existence of our physical body as mere knowledge.

Next, concerning "my mind", we have already known that the world of mind is quite different from that of common knowledge, as it was proved in paragraph 1 of Chapter 4. The world seen before our eyes, including our apparent physical body, is the world of mind, and it is just "my mind". However, you would think that "my mind" exists behind the face of your body which is the apparent physical body. It is the "so-called mind" as common knowledge, which was mentioned in paragraph 1 of Chapter 4, and it is different from the world of mind. Though the "so-called mind" is part of the world

of mind, it does not coincide with the world of mind. It might be appropriate to express it as "the apparent mind", because it is being assumed to be "my mind".

In conclusion, what we assume to be "my body" is "the apparent physical body", and what we think to be "my mind" is the "so-called mind" which stays in "the apparent physical body". Both of them exist in the world of mind. Therefore, the previous diagram [1] comes to be rewritten as follows.

"I" = the so-called mind + my apparent physical body [3]

And, if the "so-called mind" is reworded as "my apparent mind", it will be shown as follows;

"I" = my apparent mind + my apparent physical body [4]

What am I?

We started to reexamine the question, What am I, from the diagram; "I" = my mind + my body. [1] And through a consideration, it was clarified that the diagram [1] should be rewritten as follows; "I" = the so-called mind + my apparent physical body [3]

The story which has been told up to now is about the mind in a narrow sense which is restricted to "the phenomena of being conscious", and about the low-level recognition which is restricted to "knowing the existence of the objects seen before our eyes". It has not referred to the world of mind in a wide sense including the information processing of the brain and not examined the high-level recognition such as the meaning of objects.

It is certainly not appropriate to answer the question, What am I?, under such a condition. However, considering the results of the preceding paragraphs, we will reach the following conclusion, namely;

"I" am an existence which is created in the world of mind.

Common knowledge says that "my body" is the physical body which exists in the material world and "my mind" is created by the brain which is located at the head of the physical body. In fact, it is true that we have our own physical body and the body including the brain supports us from the physiological side. It is also true that "my mind" consists of both the information processing by the brain and the conscious phenomena which are the results of it. Therefore, it is possible to define "I" by the diagram, "I" = my mind + my physical body [2], and it is not wrong.

A physical body vs. an apparent physical body

It is correct that we think we have our own physical body. But, which do we think our physical body is?; the body which is seen before our eyes or the physical body which exists in the material world? We must think that it is the body seen before our eyes. It is the apparent physical body, not the physical body.

It would also be correct to think that the mind is created by the brain. Then, where do we think the mind exists? We will answer, "It seems to be behind our face." However, the face which we refer to is not the face of the physical body, but that of the apparent physical body. The brain does not exist behind the face of the apparent physical body. Even if we examine the inside of the apparent face, we cannot find the mind which we are looking for. It is the "so-called mind" which is located there. It is certainly part of the world of mind, but it is only part of the mind, where our thought about the mind as common knowledge shown by such words as intellect, emotion and volition is located. The inside of the face of the apparent physical body is also part of the world of mind.

Though it is true that we have our physical body in the material world, what we think our body is not the physical body but the apparent physical body existing in the world of mind. And it is also true that the mind is supported by the brain, however, what we think our mind is "the apparent mind" in the world of mind.

A coffee cup seen before our eyes exists in the world of mind, accompanied by the meaning of "a container for drinking coffee". Similarly, "I" exist in the world of mind, accompanied by the thought of "I".

Additional explanation to the conclusion

You would have felt some doubts against such a conclusion; "I" am an existence which is created in the world of mind. The most doubtful one would be the following: "You say that the body seen before our eyes is an apparent physical body. Then, where does our physical body exist?"

We certainly have the physical body as it has been told repeatedly. We have pursued the subject based on the assumption that the material world exists whether we human beings exist or not. Therefore, our physical body surely exists in the material world. However, we must not overlook the fact that it becomes possible for us to talk about our physical body only after we recognize the

existence.

For example, even if a coffee cup as matter exists in the material world, we cannot talk about it if we cannot recognize it. In this case, of course, it is also based on the assumption that a coffee cup as matter exists whether we recognize it or not. What we recognize is not the coffee cup as matter existing in the material world. The coffee cup which exists before our eyes is the recognition of the very cup, and the cup seen before our eyes is not the one as matter but the one as "apparent matter".

The same logic can also apply to our physical body. Our physical body certainly exists in the material world prior to our recognition of it. Though, even if the physical body exists in the material world it is impossible for us to talk about the body unless it is recognized. It becomes possible to talk about the body only after it exists in the world seen before our eyes because it is the recognition, and it is not the physical body but the apparent physical body. In a word, what we can recognize as "my body" is "the apparent physical body" seen before our eyes, not "the physical body" in the material world.

At first, we defined "I" by the diagram; "I" = my mind + my body [1] In this diagram, "my mind" and "my body" were expressed as if they are independent of each other. If "my body" is the physical body, "my mind" and "my body" are certainly different from each other concerning the kind of existence. However, since "my mind" is "the apparent mind" and "my body" is "the apparent physical body", both of them are the same phenomena in respect to the kind of existence and they exist together in the world of mind.

It is not correct to think that "I" consist of the two different elements, "my mind" and "my body". Both of them are the same kind of existence. They exist in the world of mind, and are harmonious with each other. We feel "my mind" and "my body" cannot be separated from each other. Our sense of the unity of "my mind" and "my body" seems to originate from the fact that both of them exist in the world of mind, and they are the same kind of existence.

Self-consciousness

In the previous clause, we reached the following conclusion; What we think as "I" consists of both "the so-called mind" and "the apparent physical body". : "I" = "the so-called mind" + "the apparent physical body" [3]

Next, let's examine "self-consciousness" which is another important factor when we pursue the

question; What am I?

In the first clause of this paragraph, we defined self-consciousness as "the recognition of both my mind and my body". As it was clarified that "my mind" is "the so-called mind" and "my body" is "the apparent physical body", it leads us to the view that self-consciousness is to recognize both "the so-called mind" and "the apparent physical body".

(1) Recognition of the apparent physical body

It is easy to understand how "the apparent physical body" is recognized. As told in the previous paragraph, it is the recognition of the object that an object exists in the world seen before our eyes. When we turn our eyes to our physical body, "my apparent physical body" appears in the world seen before our eyes, and it means the recognition of "the apparent physical body".

The high-level recognition must be involved in realizing that the apparent physical body is "my body". Therefore, it will be necessary to study the high-level recognition to clarify how we recognize it as "my body". However, it would not be difficult to guess that the existence of "the apparent physical body" in the world seen before our eyes leads to the recognition of "my body".

(2) Recognition of the so-called mind

On the contrary, it is difficult to clarify how we can recognize the existence of "the so-called mind". It is because "the so-called mind" is extremely abstract and we cannot see nor touch it, though we assume it to be located behind the face of the apparent physical body.

What is our assumption, the "so-called mind" exists behind the face of our apparent physical body, based on? As told in paragraph 1 of Chapter 4, the opposite direction of our sight line must be crucial. Namely, since various apparent objects appear in the world seen before our eyes following the movements of our sight line, if we assume "my mind", which is assumed to be looking at them, exists at the opposite direction of the sight line, it would be reasonable.

Our view that "I am here, and I am looking at an object" clearly shows the situation. "I" in the expression of "I am here" can be interpreted to mean "my body", and "I" in the expression of "I am looking at an object" can be interpreted to mean "my mind". Therefore, our view, "I am here, and I am looking at an object", will be paraphrased into the one that "I have my body, and "I" who stay at

my body am looking at an object".

However, it is only a common knowledge. We are wrongly convinced that the apparent physical body is the physical body and we are looking at the world seen before our eyes, which is the apparent external world, from the inside of our apparent face. Our thought that "I am looking at an object", which can be paraphrased as "the apparent mind", seems to belong to "the apparent physical body", and to be always dependent on "the apparent physical body".

Thus, "the apparent mind" or "the so-called mind" seems to be an existence which cannot be directly shown without referring to "the apparent physical body". It is because the true world of mind shown by the word "my mind" is originally the world seen before our eyes, including our apparent physical body itself. Therefore, the recognition of "my mind" must be the same as the recognition of the world seen before our eyes, including our apparent physical body. The existence of the world seen before our eyes must be the existence of "my mind" and the recognition of "my mind" as well.

However, as a matter of fact, what we think to be "my mind" as common knowledge is "the so-called mind". "The so-called mind" is not recognized itself, but it seems to be only expressed indirectly, such as "I am looking", "I am listening", "I am feeling", "I am memorizing", "I am speaking" and "I am thinking", etc. Our thought that "I am doing these activities" would be connected with "the so-called mind", and it would be the recognition of "the so-called mind" at the same time. Our view about "my mind" depends on "our apparent physical body", and it would be able to be expressed only by accompanying "our apparent physical body".

It is just the same as a coffee cup seen before our eyes, which is accompanied by the meaning of a container for fragrant coffee. "The so-called mind" also obtains the meaning of "my mind" and it is assumed to be located behind the face of the apparent physical body, and it is the recognition of "the so-called mind" at the same time, because it exists in the world seen before our eyes, that is, in the world of mind.

At the beginning of this clause, self-consciousness was shown as follows: self-consciousness is to recognize both "the so-called mind" and "the apparent physical body". As known from the story up to now, it would be concluded that "the apparent physical body" existing in the world seen before our eyes is the recognition of "the apparent physical body", and such activities accompanying with the apparent physical body as "I am looking at an object", etc., are the recognition of "the so-called mind".

Creation of “I”

“I”, who am now being referred to, am the one shown by the following diagram. “I” = the so-called mind + the apparent physical body. [3] Therefore, “I” exist only while being awaking, not like the physical body which always exists. While sleeping, “I” do not exist except when we are dreaming.

Apparent objects which exist in the world seen before our eyes repeat appearance and disappearance, and similarly “I” repeat appearance and disappearance. It is our memory that makes up for the blank from disappearance to reappearance, and it plays an important role to maintain the identity of “I”.

“I” am an existence accompanied by "the so-called mind" and "the apparent physical body". “I” do not exist as a perfect one when we are infants, and it is not correct to think that “I” am suddenly created one day. As developmental psychology shows, “I” have been formed in the world of mind since the birth through a long time in the relationship with the external world.

The most important factor that contributes to the creation of “I” must be that "the apparent physical body" is formed in the world of mind. It is just like the birth of a new life by being separated and becoming independent from the environment. Namely, an apparent physical body is separated from other objects in the world seen before our eyes, and becomes independent from the apparent material world. As a result, the apparent physical body obtains the meaning of "my body" and “I” am born in the world of mind. Though, the high-level recognition must play an important role to create the thought that the body seen before our eyes is "my body".

The apparent external world is constructed in the world of mind by the mental functions such as looking, listening and feeling, etc. It seems not to be perfect at first. Babies interact with the external world by using their own body, and the apparent external world is gradually improved through their activities, and eventually it becomes the same level as adults.

For example, "the apparent physical body" seen before babies' eyes comes to have the meaning of "my body" through their experiences that they can manipulate it by their will. The objects seen before their eyes come to have the characteristics such as hardness, weight and warmth through their activities towards the objects, and the objects seen before their eyes eventually come to have the meaning of "matter".

In addition, the sensations of acceleration and equilibrium make the apparent material world become stable, and the apparent physical body comes to move around in the apparent material world.

As a result, the relationship of "the material world" and "my body" is formed between "the apparent material world" and "the apparent physical body".

On the other hand, since the apparent material world stretches in front of their eyes, a special meaning is obtained in the opposite direction of their sight line. Namely, "I", who am assumed to be looking at the apparent material world, am located in the opposite direction of the sight line. Moreover, intellect, emotion and volition are also assumed to be in the opposite direction of their sight line, and the thought that "my mind" is located behind the face of the apparent physical body comes to arise.

In this way, the apparent material world, the apparent physical body and the apparent mind are created in the world of our mind, and we come to wrongly interpret them as the material world, the physical body and the mind respectively. And, "I", who am composed of the apparent physical body and the apparent mind, am born in the world of mind through such process. As a result, we come to interpret "the mind" (the so-called mind) to be confined to the apparent physical body, and also come to interpret "recognition" to be confined in "the mind" (the so-called mind) and to be separated from "existence". The relationship between subject and object seems to originate in this view of ours.

Why do "I" exist in the world of mind? (1)

The apparent material world, the apparent physical body, and the apparent mind exist in the world of mind. We wrongly interpret them as the material world, the physical body and the mind respectively.

Why is such a trick set by the brain, cheating even ourselves? Though, even if it is said to be cheating ourselves, it is different from the trick of juggleries. It is not intentional. The truth is that we cannot see through the true feature of the mind, because the apparent material world and "I" are artfully constructed in the world of mind.

The reason why the apparent material world and "I", who am composed of "the apparent physical body" and "the so-called mind", exist in the world of mind seems to be that they are playing an important role in the system which controls our behavior. Namely, when we human beings take the information from the external world, analyze it and decide our behavior, the apparent material world and "I" seem to be indispensable factors in the information processing.

Our behavior consists of conscious parts and unconscious parts. The former is very small, though the latter is far bigger. For example, when we are going to hold a coffee cup seen before our eyes, we do most of the acts automatically, though we are conscious of the key points such as the position of the cup and the direction of stretching our hand, etc.

The apparent material world and “I” are “phenomena of being conscious”. There is surely the backup of the information processing of the brain behind our behavior, but we are not conscious of the physiological process of the brain. The reason why the phenomena of being conscious, the apparent material world and “I”, exist in the world of mind in addition to the physiological process would be that they are playing a necessary and indispensable role as the recognition in the information processing.

One of the facts which support the assumption is that the world seen before our eyes is the copy of the external world, and the apparent physical body is the copy of our physical body. Namely, it will be very efficient in order to analyze and judge the information of the external world that the apparent material world and the apparent physical body exist in the world of mind as the copies of their original.

For example, if it is a robot controlled by a computer and is trying to stretch its arm and hold a coffee cup, it will rely on the information converted into numeric data, and there would not be a conscious phenomenon, being different from human beings. However, as for us human beings, the copies of a coffee cup as matter and our physical hand exist in the world seen before our eyes, and they are the recognition about them at the same time.

It would not be wrong to think that the existence of both an apparent coffee cup and our apparent physical hand in the world seen before our eyes is useful to stretch our physical hand and to hold the cup in the material world, though the mechanism is unknown. Or rather, it would be almost correct to think that they themselves are useful in the information processing because of existence and recognition, not because of “I am looking at it” or “I recognize it”.

In fact, under the system of synchronization, the movement of our apparent hand toward an apparent coffee cup synchronizes with that of our physical hand toward a coffee cup in the material world. We have only to turn our eyes to an object seen before our eyes when we are going to obtain the information about it. As a result, the apparent object itself, not the information converted into numeric data, will appear in the world seen before our eyes. As for the utility of information such as

the distance and the direction of our hand and a coffee cup, it must be more useful than the data converted into numeric form that the copy of the external world exists in the world seen before our eyes and at the same time it is the recognition of the external world.

"I" expressed in the question, "Why do "I" exist in the world of mind?", is "I" who am shown by the following diagram; "I" = my apparent mind + my apparent physical body" [4] Therefore, one part of this question is related to "the apparent physical body". The answer, as it has been explained now, would be that it is very useful in the information processing that the apparent physical body exists in the apparent material world as the copy of the physical body.

The other part of the question is related to "the apparent mind", and it would be paraphrased as: Why does the apparent mind exist in the world of mind? It would be because the thought of "I" makes our behavior reach a new stage which is quite different from the one in which the thought of "I" does not exist.

The thought of "I" exists in the world of mind, being accompanied by various thoughts such as "I am looking", "I am listening", "I am feeling", "I am memorizing", "I am speaking", "I am thinking" and "I am judging", etc.

However, as had told in paragraph 4 of Chapter 3, it is impossible that "I" look at the objects seen before our eyes, "I" listen to the sounds around us and "I" feel the sensations at our apparent physical body", etc. They are "apparent acts", so to speak. Nevertheless, there is a system which makes us assume that "I" exist in the material world and do such apparent acts, being accompanied by a physical body.

Why do "I" exist in the world of mind? (2)

What can we obtain under such a system? Let's think about the act of stretching our hand to a coffee cup and of drinking coffee, for example. If the thought of "I" is got rid of, a series of the acts will be expressed as follows.

A desire to drink coffee arises.

Based on it, a hand stretches to a coffee cup.

The position of the hand and the cup is being recognized because they exist in the world seen before one's eyes.

The cup is held.

The cup is drawn nearby.

Coffee is sipped.

The aroma of coffee arises, and a feeling of relaxation is induced.

Thus, the acts become extremely mechanical if the thought of “I” is erased.

Next, if the thought of “I” is taken into consideration, a series of acts will be expressed as follows:

I want to drink coffee.

I decide to stretch my hand to a coffee cup by my will.

I know the position of the cup and my hand, because I am looking at them.

I hold the cup.

I draw the cup to my mouth.

I sip coffee.

I feel the aroma of coffee and relax.

In this way, our behavior develops to a new stage by having the thought of “I”, in other words, by having "the thought of an actor who does acts", such as I want, I decide", I know, I act and I feel, etc. “I” have only to turn my eyes to the object seen before my eyes to get information about it. As a result, “I” can obtain the information about the object. It is “I” that analyze the information. It is “I” that determine to act towards the object.

In this way, by the existence of the thought of “I”, a series of our acts such as collecting and analyzing information, determining and executing our behavior, come to be smoothly carried out.

Such a view of the thought of “I” is just the same as our common knowledge about the mind, the body and the external world. We believe the view without doubting, but it is wrong, as already told in the previous Chapters. The copy of both the body and the material world is created in the world of our mind, and we believe them the physical body and the material world without noticing them to be the copy. As a result, we come to think that “I” stay in the physical body, and am acting in the material world.

It is certainly the physical body that actually acts in the material world. However, the physical body itself can only behave mechanically. It is necessary for us to be equipped with a system of controlling

our behavior so as to highly adjust ourselves to a complex environment.

The system would be composed of the following two functions. One of them is the neural network of the brain, and it supports "our behavior" from the physiological side. The other is that the apparent material world and "I", who consist of the apparent physical body and the apparent mind, exist in the world of mind, and they support "our behavior" from the side of "recognition". Namely, the scheme as common knowledge, "my mind stays in my physical body, and "I" exist and act in the material world", comes to be established in the world of mind.

Our behavior would be being performed by the system that "the phenomena of being conscious" supports the information processing from recognition and the neural network of the brain supports it from the physiological side. Both the apparent material world and "I" would exist as part of the system that controls our behavior. Such a system should be expressed as "the evolution of the information processing" or "the evolution of the mind".

The word "apparent" does not mean "vacant" or "meaningless"

The word "apparent" has been used, such as the apparent physical body, the apparent mind and the apparent material world. The word "apparent" tends to remind us of negative images, such as vacant, meaningless, valueless and empty, etc. However, it has not been used as such negative meanings in this paper.

The word "real" will be used when objects as matter exist in the material world. On the other hand, the word "apparent" has been used because though apparent objects exist in the world of mind they do not exist in the material world. As for the apparent physical body and the apparent material world, they also have been used because of the same reason.

The apparent physical body and the apparent materials surely exist in the world of mind, having their own characteristics. Though they are expressed as "apparent", they are existence, and are recognition as well. They must be indispensable factors of the information processing in a certain mechanism which we have not known yet.

Summary of this paragraph

The apparent material world, the apparent physical body and the apparent mind exist in the world

of mind. "I" am composed of the apparent mind and the apparent physical body. Therefore, it can be concluded that "I" am an existence created in the world of mind.

The apparent material world and the apparent physical body are the copy of their original. It would be more efficient for us human beings to analyze and judge the information and to behave. As a result, we would have come to obtain our high ability to adjust ourselves to the complex environment, though we have not known the mechanism yet.

Postscript

This paper would not be easy to read as told in the foreword. If you have read it through, it is my pleasure.

The purpose of this paper is to disprove the common knowledge about the mind by pointing out the contradictions which lurk in such our daily act as "I am looking at a coffee cup", and to show a new view about the world of mind. Logical analyses are necessary to achieve it, and as a result it is inevitable to be argumentative.

You might have been compelled to review the common knowledge about the mind. In addition, I am concerned that the unfamiliar words, such as "the object we are looking", "the body acting to look" and "the result of looking", might have made it more difficult for you to trace the story.

It seemed to be impossible to study mind and consciousness from the standpoint of science a little before the 21st century, but today, the number of scientists who study them has been increasing gradually and steadily.

And correspondingly, the number of scientists who refer to the fact that the objects seen before our eyes are not matter but the psychological phenomena have been slightly increasing. In fact, the objects seen before our eyes are not matter but the psychological phenomena, and it would be comparatively easy to understand. It is our body seen before our eyes that we can hardly understand the true feature. It is not the physical body existing in the material world but an apparent physical body existing in the world of our mind.

The reason why we cannot realize the true feature of the mind is because we stand on the following common knowledge: "I" stay in my physical body. The body which is seen before my eyes is my body. Therefore, the body which is seen before my eyes is a physical body.

Thus, there are two hurdles which prevent us from reaching the answer to the question: "Where is the mind?" One of them is whether we can realize that the objects seen before our eyes are not matter but the psychological phenomena. The other is whether we can realize that our body seen before our eyes is not the physical body but an apparent physical body. In order to clear the hurdles, it is important to admit the results obtained by logical analyses as being true, and to correctly interpret the results without being biased by common knowledge.

The views, "I am here, and I am looking at an object" and "I look at an object, and I come to know the existence", are hard tricks which conceal the true feature of the mind and recognition. However, the key to see through these tricks is extremely simple. The information from the external world is carried to the brain and processed there. We only have to ascertain what the results of the information processing are.

However, the results conflict with common knowledge fundamentally, and it is not easy for us to accept them as being true. In addition, there are some reasons as common knowledge which conceal the true feature of the mind, and they make it more difficult for us to accept the results to be true.

The correct interpretation about our body seen before our eyes surely becomes the key to understand the true feature of the mind and recognition, and furthermore, to understand the existence of "I". However, we interpret it as the physical body, and as a result, it leads us to the misunderstanding that the mind is a closed world which is ambiguous to even ourselves and recognition is separated from existence. The truth is that the world and our body seen before our eyes are the world of our mind, and existence and recognition are two sides of a coin.

This paper has analyzed chiefly the act of looking and considered only the contents of being conscious, namely, it has dealt with the world of mind only in a narrow sense. It has not considered the mind in a wide sense which includes the information processing of the brain, and it has also not referred to the high-level recognition. Therefore, you might have some doubts against the conclusion

about the world of mind and the interpretation of "I", which were told in this paper. In order to clear your doubts, it is necessary to examine the mind in a wide sense and the high-level recognition.

It is certainly true that there are some incompleteness about the story of this paper, but the story which has been told is not such a matter; "There might be such a view." If we logically analyze the act that "I am looking at a coffee cup", it inevitably leads us to the conclusion that the coffee cup seen before our eyes is not matter but the psychological phenomenon which exists in the world of our mind and it is the recognition as well. And furthermore, it leads us to the conclusion that "I" exist in the world of my mind.

If I am asked whether I am living every day under the view which has been told in this paper, I reply "No". I do not think in daily life that "the objects seen before my eyes are apparent matter, my body seen before my eyes is an apparent physical body, the person who is walking towards me is an apparent person, and they all belongs to the world of my mind". As common knowledge says, I think that "the objects seen before my eyes are matter, the world seen before my eyes is the material world, the body seen before my eyes is my physical body, and the person seen before my eyes is the person itself".

However, when I think about the mind, I take the view which has been told in this paper. I sometimes feel alarmed when I think about the artfulness of the trick that "I" am an existence in the world of my mind. On the other hand, when I happen to see a beautiful, magnificent scenery, and I think it to be the phenomena in the world of my mind, I feel that the world of mind is wonderful and our life is precious.

It was 1687 when I. Newton published the "Principia" and classical mechanics was established. And, it was 1665 when R. Hook observed a fragment of cork with a microscope, which was made by him, and discovered that it consisted of little boxes like a beehive and named it a "cell". Their works were achieved in the middle of the 17th century.

After that, about three and a half centuries have passed, and physics and biology have advanced very rapidly. The methods of scientific research have proved to be effective to clarify unknown phenomena.

Some scientists have begun to study mind and consciousness with the advance of brain science at the end of the 20th century. Science will surely achieve excellent results in this field as well. It is

indispensable for researchers to understand the true feature of "the world seen before our eyes", and it would be a starting point of the study.

The story which has been told up to now is only an entrance of the study of the world of mind. There still remain a lot of problems which must be clarified. First of all, it is necessary to clarify what role the phenomena of being conscious plays in the world of mind in a wide sense which includes the information processing of the brain. It will also be necessary to reexamine the mind, consciousness and recognition from the viewpoint of "existence". At the same time, it seems also to be necessary to reinterpret "existence" from the viewpoint of "recognition".

The story of this paper has been pursued under the assumption that the material world exists whether or not human beings exist. And, even now when the world seen before our eyes has been proved to be the world of mind, there is no change in the assumption. Though, the question "Where is the mind?" transforms itself to "Where is the material world?", and it would be thrown back to us.

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