Article

Descartes's Problem

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Abstract

René Descartes insists that there are two distinct things in the world: mind and body. He attempts to explain how these two things interact with each other but in vain. Why is that? According to Buddhism, the reason is that the world is not divided as language segments the world. Phenomena are one and whole thing but not divisible into several parts. But we divide the world into parts using language and try to explain phenomena by combining words. So we fail to understand phenomena by language even though we continue to explain them in more and more details using words. In a sense, things words refer to are illusions that do not exist in advance of language. We deceive ourselves that things exist independently of language. Descartes is no exception. He deceives himself that mind and body exist independently of each other. But these two things cannot be divided but are one and whole thing. So Descartes fails to explain how mind and body interact with each other.

Key Words: body, mind, dualism, interaction, words, things, Buddhism

Introduction

We usually think that there are already things that words refer to from the outset. Descartes further thinks that there are mind and body in the world and that these two are distinct from each other. Furthermore, he tries to solve the problem of how these two interact with each other but in vain. Why is that? In this paper, we shall examine Descartes's problem of how mind and body interact with each other from a point of view of words and things.

1. An Outline of the Mind/Body Problem

We usually distinguish mental aspects from physical ones without doubting that:

In the way we describe ourselves and the world we usually make a distinction between the mental and physical aspects. Mental aspects are such things as thinking, feeling, deciding, dreaming, imagining, wishing, and so on. Physical ones include feet, limbs, our brains, cups of tea, the Empire State building, and so on. (Warburton 1999: 130)

If there are mind and body in this world, then how can we explain the relationship between mind and body? This is called the Mind/Body Problem:

When we do something, such as play tennis, we use both our mental and our physical aspects: we think about the rules of the game, where our opponent is likely to play the next shot, and so on, and we move our bodies. But is there a real division

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between mind and body, or is this just a convenient way of talking about ourselves? The problem of explaining the true relationship between mind and body is known as the Mind/Body Problem.

(Warburton 1999: 130)

To explain the relationship between mind and body, we have two ways. One is to accept both mind and body, the other to acknowledge only body but not mind:

Those who believe that mind and body are separate things, that each of us has both a mind and a body, are called mind/body dualists. Those who believe that the mental is in some sense the same thing as the physical, that we are nothing more than flesh and blood and have no separate mind substance, are known as physicalists.

(Warburton 1999: 130-131)

The difference between mind/body dualists and physicalists is whether they believe in the existence of mind independently of body. Those who believe in it are mind/body dualists, and those who do not are physicalists. So they both believe in the existence of not only body but also mind:

Dualism, as we have seen, involves a belief in the existence of a non-physical substance: the mental. A dualist typically believes that body and mind are distinct substances which interact with each other but remain separate. Mental processes, such as thinking, are not the same as physical ones, such as brain cells firing; mental processes occur in the mind, not in the body. The mind is not the living brain. (Warburton 1999: 131)

Generally speaking, it is very difficult to understand how body can produce mind or consciousness. This is one of the reasons why dualism is thought to be plausible. Incidentally, in this respect John Searle (1980) may be a mind/body dualist because he denies that machines (body, that is, substance) can think like a human being although he does not seem to confess that he is.

As is easily guessed, belief in mind leads to

accepting the soul, which is related to religion. As is well known, it is written in *Genesis in the Old Testament* that God inspired "soul" into the first human being, Adam, who was created from the dust of the ground (body, that is, substance) by God's hand:

Mind/body dualism is a view held by many people, particularly by those who believe that it is possible to survive our bodily death, either by living in some kind of spirit world or by being reincarnated in a new body. Both these views presuppose that human beings are not just physical beings, but rather that our most important part is the non-physical mind or, as it is more often called in religious contexts, the soul. René Descartes is probably the most famous mind/body dualist: such dualism is often called Cartesian dualism [...].

(Warburton 1999: 131)

Then, what does Descartes say about the relationship between mind and body? Next, we shall examine his dualism.

2. Descartes's Dualism

First of all, Descartes insists that he does exist after denying that all things except him exist in the world:

Nonetheless I convinced myself that there is nothing at all in the world, no sky, no earth, no minds, no bodies; it is not therefore also true that I do not exist? However, I certainly did exist, if I convinced myself of something. There is some unidentified deceiver, however, all powerful and cunning, who is dedicated to deceiving me constantly. Therefore, it is indubitable that I also exist, if he deceives me. And let him deceive me as much as he wishes, he will still never bring it about that I am nothing as long as I think I am something. Thus, having weighed up everything adequately, it must finally be stated that this proposition 'I am, I think' is necessarily true whenever it is stated by me or conceived in my mind. (Descartes 1998: 23–24)

According to Descartes, he does exist every time he thinks that he is something. Next, Descartes confirms the existence of bodies:

As regards the body, however, I had no doubts. I thought I knew its nature clearly and, if I ever tried to describe how I conceived it in my mind, I would have explained it as follows: by a body I understand anything that can be limited by some shape, can be circumscribed in a place, and can so fill a space that every other body is excluded from it. It can be perceived by touch, sight, hearing, taste or smell and can be moved in various ways—however, not by itself but by whatever else touches it. For I thought that it did not belong in any way to the nature of body to have a power to move itself, any more than it has the power of sensing or thinking. In fact, I was surprised to find such powers in certain bodies.

(Descartes 1998: 24-25)

Here Descartes defines what bodies are and distinguishes body from mind.

Then, he is sure that he is a thinking thing (*res cogitans*), which is a mind:

To think? That's it. It is thought. This alone cannot be detached from me. I am, I exist; that is certain. But for how long? As long as I think, for it might possibly happen if I ceased completely to think that I would thereby cease to exist at all. I do not accept anything at present that is not necessarily true. I am, therefore, precisely only a thinking thing, that is, a mind, soul, intellect or reason—words the meaning of which was formerly unknown to me. But I am a genuine thing and I truly exist. But what kind of thing? I just said: a thinking thing.

(Descartes 1998: 25)

Moreover, Descartes insists that he, a thinking thing (*res cogitans*), is very closely joined to his body because of the sensations of pain, hunger, thirst, etc.:

Nature also teaches by means of the sensations of pain, hunger, thirst, etc., that I am not present to my body only in the way that a pilot is present to a ship, but that I am very closely joined to it and almost merged with it to such an extent that, together with it, I compose a single entity. Otherwise, when my

body is injured I (who am nothing but a thinking thing) would not feel pain as a result; instead I would perceive such an injury as a pilot perceives by sight if some part of the ship is damaged. Likewise, when my body needs food or drink, I would understand this more clearly and would not have confused sensations of hunger and thirst. For these sensations of thirst, hunger, pain, etc., are undoubtedly mere confused ways of thinking that result from the union and, as it were, the thorough mixing together of mind and body.

(Descartes 1998: 63-64)

Next Descartes argues that the mind is completely different from the body:

First of all, I perceive that there is a big difference between the mind and the body insofar as the body, by its nature, is always divisible whereas the mind is evidently indivisible. When I reflect on the mind (or on myself insofar as I am simply a thinking thing), I certainly cannot distinguish any parts in myself; instead I understand myself to be a completely unified and integral thing. And even though the whole mind seems to be united with the whole body, if however a foot, an arm, or any other part of the body is cut off, I know that nothing is thereby taken away from the mind. Nor can the faculties of willing, sensing, understanding, etc., be said to be parts of the mind, because it is one and the same mind that wills, senses and understands. In contrast, I cannot think of any physical or extended body that I cannot divide easily in my thought; for that reason alone, I understand that it is divisible. That would be enough to teach me that the mind is completely different from the body if I did not already know it adequately from other considerations. (Descartes 1998: 67)

But according to M. S. Gazzaniga (2011), our mind is not indivisible. The right and left brains function independently of each other. So mind is not the one and whole thing.

How, then, does Descartes explain that the body interacts with the mind?

Secondly, I perceive that the mind is not affected immediately by all the parts of the body but only by the brain or, perhaps, only by one small part of the brain, namely the part in which the common sense is said to be. Whenever this part is in the same state, it presents the same thing to the mind even though the other parts of the body may be in different states. This is proved by many experiences that need not be reviewed here.

(Descartes 1998: 67-68)

According to Descartes, the mind interacts with the body in some part of the brain:

[...] when I feel a pain in my foot, physics teaches me that that sensation occurs by means of the nerves that are spread through the foot and are stretched from the foot to the brain like cords; when they are pulled in the foot, they also pull the inner parts of the brain where they terminate, and they stimulate a certain motion there, which was established by nature to affect the mind with a feeling of what seems like a pain in the foot. Since these nerves have to pass through the leg, the thigh, the loins, the back and the neck to reach from the foot to the brain, it can happen that, even if that section of the nerves which is in the foot is not affected but only some other intermediate section, evidently the very same motion occurs in the brain as when the foot is hurt, from which it will necessarily follow that the mind feels the same pain. The same thing must occur in the case of other sensations. (Descartes 1998: 68)

Descartes goes on to explain what happens to the mind:

[...] when the nerves in the foot are moved violently and more than usual, their motion, passing through the spinal cord to the inner parts of the brain, gives a signal to the mind to sense something, namely a pain that seems to be in the foot, by which it is stimulated to remove its cause, insofar as that is possible, as something harmful to the foot.

(Descartes 1998: 68–69)

Or a sensation of thirst is sensed:

[...] when we need a drink, that gives rise to a certain dryness in the throat, which moves its nerves and, as a result, the interior of the brain. This motion affects the mind with a sensation of thirst, [...]

(Descartes 1998: 69)

Surprisingly, Descartes says that the same motion in the brain causes the same sensation in the mind. This idea reminds us of physicalism, which insists that the mind can be explained by physical and chemical reaction of the matter:

Thus the sense is naturally deceived because, since the same motion in the brain must always trigger the same sensation in the mind and since it results much more frequently from some cause that harms the foot rather than from anything else, it is reasonable that it would always signal to the mind a pain in the foot rather than in any other part of the body.

(Descartes 1998: 69)

Thus, Descartes explains the relationship between mind and body.

But could Descartes have convinced other people to accept his dualism?

3. Descartes and Princess Elizabeth

Princess Elizabeth, who is a reader of Descartes's writings, says in her letter dated 16 May 1643 to Descartes:

... how can the human soul, which is only a thinking substance, determine the movement of the animal spirits in order to perform a voluntary action? It seems as if every determination of movement results from the following three factors: the pushing of the thing that is moved, the manner in which it is pushed by the body that moves it, and the quality and shape of the latter's surface. The first two presuppose that the bodies touch, while the third presupposes extension. You exclude extension completely from your concept of the soul and, it seems to me, it is incompatible with being an immaterial thing. That is why I am asking for

a definition of the soul which is more specific than what is provided in your *Metaphysics*, that is, of the substance of the soul when it is separated from its action of thinking. For even though we assume that the substance and its thinking are inseparable, just like God's attributes—however, it is difficult to establish their inseparability in the mother's womb or in cases of serious fainting—we can get a better idea of them by considering them separately.

(Descartes 1998: 148)

Here Princess Elizabeth is asking how two distinct things—mind and body—interact with each other. Descartes answers her question in his letter dated 21 May 1643 to Princess Elizabeth, taking the relation between weight and an object for an example:

For example, by assuming that weight is a real quality of which we know nothing apart from the fact that it is the power to move a body in which it is present towards the centre of the earth, we have no difficulty in conceiving how it moves the body nor how it is joined to it. And we never think that this occurs by a real contact between two surfaces, for we experience in ourselves that we have a specific notion with which to conceive it. I think that we use this notion badly when we apply it to weight, which is something that is not really distinct from the body-something which I hope to show in my Physics-and that it was given us instead to conceive of the way in which the soul moves the body. (Descartes 1998: 150)

In short, Descartes is trying to explain how the mind affects the body by saying that weight has power and it does not exert its power through contact between two objects:

$$\begin{array}{ccc}
\text{body} & \longleftrightarrow & \text{mind} \\
\uparrow & & \uparrow \\
\text{object} & \longleftrightarrow & \text{weight}
\end{array}$$

However, Princess Elizabeth is not convinced by Descartes's answer above and asks him a question again in her letter dated 20 June 1643 to Descartes:

I hope I can use that as an excuse for my stupidity in not being able to understand the idea by which we are supposed to decide how the mind (which is neither extended nor material) can move the body, by comparison with the idea you formerly had of heaviness. Nor can I understand why this power to move a body towards the centre of the earth, which you falsely attribute to it in the past as a quality, should convince us that a body could be pushed by something immaterial, no more than a demonstration of the contrary truth (which you promise in your Physics) could confirm us in believing that it is impossible. The main reason is that this idea (which cannot equal the perfection or intentional reality of the idea of God) may be false, because of ignorance of whatever really moves these bodies towards the earth's centre. And since there is no observable material cause, this motion would have been attributed to its opposite, an immaterial cause—something that I have never been able to conceive except by the negation of what is material—even though there can be no communication between an immaterial cause and the motion.

I confess that it would be easier for me to attribute matter and extension to the soul than to attribute the ability to move a body, and to be moved by a body, to an immaterial being [the soul]. For if the former were accomplished by information, it would have to be the case that the minds that cause the movement are intelligent-something you do not attribute to anything which is physical. And although you show the possibility of the second option in your Metaphysical Meditations, it is still very difficult to understand how a soul such as you described it, which had the faculty and habit of reasoning correctly, could lose all that as a result of a few vapours and how, despite being able to subsist without the body and having nothing in common with it, it would be ruled by it in such a way.

(Descartes 1998: 150-151)

Here Princess Elizabeth criticizes Descartes's idea that the mind and the body interact by an analogy of heaviness, proposing that we should attribute matter and extension to the soul, which

means that the mind becomes the body and the mind does not exist!

Descartes answers Princess Elizabeth's criticism above in his letter dated 28 June 1643 to Princess Elizabeth:

But I thought that, more than thoughts that require less attention, these meditations were responsible for making you find obscure the notion we have of the union of mind and body, because it seemed to me that the human mind is incapable of conceiving very distinctly, and simultaneously, both the distinction and union of body and soul. The reason is that, in order to do so, it would be necessary to conceive of them as one single thing and, at the same time, to conceive them as two things—which is self-contradictory. Assuming that Your Highness still retains a vivid memory of the reason that prove the distinction of the soul and body, and not wishing to ask you to get rid of them in order to conceive of the union that everyone constantly experiences in themselves without philosophizing-viz. of being a single person who has a body and thought together, and being of such a nature that thought can move the body and can sense the changes that occur in it—I therefore used an analogy above with heaviness and with the other qualities that we commonly imagine are united with certain bodies, for the way in which thought is united with our body. I was not worried that this analogy might be defective on account of the fact that these qualities are not real, as they are imagined to be, because Your Highness was already completely convinced that the soul is a substance which is distinct from the body.

However, since Your Highness suggested that it is easier to attribute matter and extension to the soul than to attribute to the soul the ability to move, and to be moved by, a body without having any matter itself, I beseech you to take the liberty to attribute this matter and extension to the soul, for that is nothing more than conceiving of its union with the body. Having conceived with that union properly and having experienced it in yourself, you will find it easy to think that the matter that you have attributed to this thought is not the thought

itself and that the extension of this matter has a different nature from the extension of thought, in this sense: the former is determined to a certain place from which it excludes every other bodily extension, whereas this does not apply in the latter case. In this way Your Highness will easily recover your knowledge of the distinction between the soul and the body, despite the fact that you conceive of their union. (Descartes 1998: 153–154)

Here Descartes seems to behave like an agnostic saying that we cannot understand the distinction and union of mind and body. He explains the reason why this is so. It's because it is contradictory to understand two things at the same time: one is that mind and body are one and the same thing, the other is that mind and body are distinct. Then, Descartes says that Princess Elizabeth's proposition is a good idea because it is what unites 'mind and body' as one and the same thing. Furthermore, Descartes says that after understanding the union of mind and body, we can understand that 'body after the union' is not thinking itself and 'extension attributed to mind' is different from 'extension of body'. In short, Descartes insists again that body and mind are two distinct things.

After all, Descartes's argument returns to his first statement that body and mind are two different things. Could his line of reasoning have convinced Princess Elizabeth? Probably not! Descartes does not prove anything at all!

So Descartes could not explain to Princess Elizabeth the interaction between body and mind. Science cannot deal with mind:

[...] it is alleged by physicalists, a non-physical mind couldn't be investigated directly: in particular, it couldn't be investigated scientifically because science only deals with the physical world.

(Warburton 1999: 131-132)

We cannot explain mind using science:

Most scientists, particularly those who are physicalists, assume that every change in an object can be explained by a priori physical event: the causes of all physical events are themselves physical. So, for instance, if a nerve cell in someone's brain fires, a neuropsychologist will look for a physical cause of this. But if pure thought, which is an activity of the mind, can lead to action, then some merely mental events must directly lead to physical ones.

(Warburton 1999: 133)

Furthermore, there are other questions about the mind/brain dualism we need to answer:

Where could this mind substance have suddenly come from? And why does the evolution of mind so closely parallel the evolution of the brain? [...] events in the brain are very closely linked with mental events. Why do we need to introduce the idea of the mind as distinct from the body when it is obvious that, for example, severe damage to the brain leads to mental deficiency? If mind and body are really distinct, why is this so? (Warburton 1999: 132–133)

After all, can mind exist independently of body as Descartes insists?

Next, we shall examine Sadakata's views on the Mind/Body Problem. He develops his insistence based on Nāgārjuna's teachings.

4. Sadakata's Views on the Mind/Body Problem

First of all, Sadakata discusses the relationship between things and words:

Words have unchangeable, well-defined, and distinct meaning. This is a matter of fact. That is why we can achieve our goals by using words. Also, that is the reason why we invented words. [...]

Words are tools to distinguish one thing from another. Although there are originally no boundaries in the whole universe, [...] we give various names to entities, which do not exist before they are named. The whole universe comes to be segmented by words into various forms according to our convenience. [...] But the universe is not really what we think it to be. [...] (My translation)

(Sadakata 1990: 77-78)

Sadakata's views on words quoted above is

surprisingly similar to Saussure's criticism of nomenclaturism (Saussure 2006: 162). Saussure insists that words are not labels attached to things in the world. That is why Maruyama already points out how closely Saussure's idea is related to Nāgārjuna's (Maruyama 1984: 215). So there do not exist things referred to by words:

While we are using words, we misunderstand that there are unchangeable and well-defined entities, which are separate from and correspond to words. [...] For example, while we use the word "I," we deceive ourselves that there is an unchangeable entity "I" (soul). (My translation)

(Sadakata 1990: 78-79)

If Sadakata is right, "ego" does not exist anywhere, which is an element of "cogito" and "sum" in "Cogito ergo sum" propounded by Descartes. So both "cogito (I think)" and "sum (I am)" are a kind of fiction:

Every phenomenon is one and whole thing that cannot be divided. But if we express a phenomenon, we need to split it into [for example] an agent and its movement and further to connect the two. This leads to an expression [a sentence] like a subject plus a verb.

Communication may always follow the same procedure as this. (My translation)

(Sadakata 1990: 105)

For example, we express a phenomenon, which is originally one and whole, by using words that divide the phenomenon:

Taro goes.
Taro falls down.
Taro laughs.
Taro cries.

From these expressions above, we extract "Taro," who is an unchangeable entity. We derive "Taro," who has nothing to do with any movement, although "Taro" should be always either "Taro who goes," "Taro who falls down," "Taro who laughs," or "Taro

who cries." But such "Taro" does not exist, who is abstract. Despite that, we think that such "Taro" exists

Next, consider the following expressions:

Taro goes.
Hanako goes.
A dog goes.
A train goes.

From these expressions above, we extract "go," which is a universal action. But the action "go" itself never exists. Necessarily, *someone* or *something* goes. Despite that, we implicitly assume that the action "go" itself exists independently of the agent [like Taro, Hanako, a dog or a train]. (My translation) (Sadakata 1990: 106–107)

If Sadakata's views are correct, then it will be a crucial mistake that Descartes propounds his dualism of "Mind and Body." The reason is that every phenomenon is continuum and that both "Mind" and "Body" do not exist independently of each other. So "the Mind/Body Problem" itself, that is, how "Mind" and "Body" interact, is a pseudoproblem and should vanish in the air. Neither "Mind" nor "Body" exists. "Mind" and "Body" exist as one and whole phenomenon. So there is no interaction between "Mind" and "Body." Descartes is caught in a trap of words and insists on the Mind/Body dualism.

So Sadakata criticizes dualism like Descartes's:

Laymen regard "persons who see something" and "things that are seen by persons" as "one thing" and "another." They think that the following pair is two distinct things: subjectivity and objectivity; mind and body; internal world and external world; the self and the world. This idea distorts our world view.

We assume that the world exists independently of ourselves. That is the reason why we fail to explain how our sensation takes place. Scientists explain: particles of light or waves fly towards and stimulate our retina and then our sensation of light takes place. If you think that you understand

their explanation, you will deceive yourself. Why do we get sensation of light when particles of light stimulate our retina? Scientists goes on to explain further: the reason is that if particles stimulate our retina, electric current will flow on the retina and reach the brain through the nerves. But why do we get sensation of light when electric current reaches the brain? Probably scientists will go on to explain even further. But unfortunately, however further scientists may explain, they will not be able to explain why we get sensation of light. Why is that? The reason is that from the outset we have a definition that mind and body are separated.

Probably we forget this definition. We have accepted since our childhood the definition that was given by our ancestors long time ago. Our ancestors thought that mind and body were separated although they were not aware of the dignity of definition. Now scientists are desperately trying to attribute mental phenomena to physical phenomena, forgetting the definition that mind and body are separated. (My translation) (Sadakata 1990: 118–119)

By the way, if so, then are both Yuval Noah Harari and Michio Kaku also caught in a trap of words? Harari insists that machines have intelligence but not consciousness (Harari 2015: 114). On the other hand, Kaku maintains that machines can have both intelligence and consciousness (Kaku 2014: 221–223). But as we have seen, there are no such things as the words "intelligence" and "consciousness" refer to in this world. For more details, see Araki 2020.

Conclusion

Descartes insists that we have mind and body and explains how these two distinct things interact with each other. But he fails to convince Princess Elizabeth that his explanation is plausible. Why is that? According to the world view based on Buddhism, the whole universe is continuum. This means that the world is not segmented as it is thought to be before language emerges. In other words, language divides the universe by using words and expresses phenomena by connecting words. So there is nothing that corresponds to words. The words "mind" and "body" are no exception. There

are no corresponding things to "mind" and "body." So there is no interaction between mind and body either. Mind and body are one and whole thing but not separate and distinct things. Descartes are deceived by a trick of words. Mind and body are just fictions or illusions. This idea is taken over by Saussure, Whorf, and Chomsky. Saussure (2006: 162) criticizes the nomenclaturism and insists on the same claim as what is mentioned above. For more details, see Araki (2019: 5-7). Maruyama already points out that Saussure's idea is similar to Nāgārjuna's insistence (Maruyama 1984: 215). Inspired by his writings, I discussed the relationship between Saussure's and Nāgārjuna's ideas (Araki 1997: 195-204). Also, Whorf (2012: 308) insists that the world around us is not segmented in advance of language. For more details, see Araki (2019: 9-10). Similarly, Chomsky (1996: 22-23; 2000: 36; 2010: 57) says that things are not mind-independent and that they are what is prescribed by a human framework of perceiving the environment. For more details, see Araki (2019: 7-9). His idea is similar to J. von Uexküll's theory of Umwelt (1973). In this sense, both Chomsky and Uexküll may be Kantians. Kant insists that we recognize the world according to our framework of mind (1781). For more details, see Araki (1999: 5-18). Also, for intellectual relations between Descartes and Chomsky, see Araki (2006: 163-174).

References

- Araki, Naoki. "Nāgārjuna and Saussure." *Bulletin of Hiroshima Institute of Technology* 31: pp. 195–204. (1997) (in Japanese)
- Araki, Naoki. "Chomsky and Kant." Hearts to the English-American Language and Literature: Essays Presented to Emeritus Professor Sutezo Hirose in Honour of his Eighty-eighth Birthday, edited by Hisayuki Sasamoto et al. pp. 5–18. Osaka-Kyoiku-Tosho. 1999. (in Japanese)
- Araki, Naoki. "Descartes and Chomsky." *Neo-ANGLICA No. 4.* pp. 163–174. Osaka-Kyoiku-Tosho. (2006) (in Japanese)
- Araki, Naoki. "Sapiens and Language." Bulletin of Hiroshima Institute of Technology 53: pp. 1-10. (2019)

- Araki, Naoki. "Harari and Kaku." *Bulletin of Hiroshima Institute of Technology* 54: pp. 19-28. (2020)
- Chomsky, Noam. Powers and Prospects: Reflections on Human Nature and the Social Order. Pluto Press. 1996.
- Chomsky, Noam. New Horizons in the Study of Language and Mind. Cambridge University Press. 2000.
- Chomsky, Noam. "Some simple evo devo theses: how true might they be for language?" In *The Evolution of Human Language: Biolinguistic Perspectives*, edited by Richard K. Larson, Viviane Déprez and Hiroko Yamakido. pp. 45-62. Cambridge University Press. 2010.
- Descartes, René. *Meditations and Other Metaphysical Writings* (translated with an introduction by Desmond M. Clarke). Penguin Books. 1998.
- Gazzaniga, M. S. Who's in Charge?: Free Will and The Science of the Brain. Ecco. 2011.
- Harari, Yuval Noah. *Homo Deus: A Brief History of Tomorrow*. Harvill Secker. 2015.
- Kaku, Michio. The Future of the Mind: The Scientific Quest To Understand, Enhance and Empower the Mind. Penguin Books. 2014.
- Kant, Immanuel. Kritik der reinen Vernunft. 1781. (Critique of Pure Reason. translated by Norman Kemp Smith. Palgrave Macmillan. 2003)
- Maruyama, Keizaburo. *Fetishism of Culture*. Keisosyobo. 1984. (in Japanese)
- Okada, Taketo. A Story of Mind/Body Problem: from Descartes to Cognitive Science. Kitaohjishobo. 2012. (in Japanese)
- Sadakata, Akira. *Emptiness and Non-Ego: Buddhism's View of Language*. Kodanshya. 1990.
 (in Japanese)
- Saussure, Ferdinand de. Writings in General Linguistics (translated by Carol Sanders and Matthew Pires). Oxford University Press. 2006.
- Searle, John. "Minds, Brains, and Programs." *The Behavioral and Brain Sciences* 3: pp. 417-457. (1980)
- Uexküll, J. von & Kriszat, G. Streifzüge durch die Umwelten von Tieren und Menschen Bedeutungslehre (translated by Toshitaka Hidaka and Yasuyuki Noda. Shisakusha. 1973). (in

Japanese)
Warburton, Nigel. *Philosophy: The Basics*. 3rd edition. Routledge. 1999.

Whorf, B. Lee. *Language, Thought and Reality*. 2nd edition. The MIT Press. 2012.