

THE CYBORG'S SELF-IDENTITY PROBLEM IN A HYPER-CONNECTED SOCIETY AND ITS ALTERNATIVES¹

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Cyborgs, which mean a combination of humans and robots or robotized humans, are no longer virtual beings that appear only in science fiction. With the advancement of science and technology, it is expected that various forms of cyborg will already exist and appear anew. On the other hand, modern society is gradually becoming a hyper-connected society in which information and intelligence of everything, such as people and objects, are closely connected in a single organic network and communicate smoothly. In this society, cyborg, a hybrid existence of humans and robots in this society, can face difficulties in establishing its self-identity in particular. In this context, this study focuses on the problem of cyborg's self-identity that may arise in a hyper-connected society and suggests an alternative.

1. Introduction

The purpose of this study is to overhaul our mental foundation on the path of the new era by examining and reflecting on the human and ethical problems caused by the development of advanced science and technology. With the development of AI (artificial intelligence) and information and communication technology, a society in which information [data] and intelligence of everything, including people and things, are closely connected to one organic network is becoming visible. This society is called the so-called Hyper-connected Society. Many predict that a hyper-connected society will facilitate choice and decision-making by providing personalized information and generalized intelligence to all members. And it is expected that this will improve the convenience and efficiency of individual lives, and the gap in life (inequality) between individuals will be smaller than now. Besides that, I predict that in such a data-driven society, human actors will inevitably become cyborgs. Here, the cyborg I refer to means a combination of humans and robots or a robotized human. In other words, in a hyper-connected society, anyone will live 'in combination with automated machines'. Cyborgs are no longer virtual beings that only appear in science fiction. This is because with the development of science and technology, various types of cyborgs already exist and are expected to emerge anew.

However, a hyper-connected society that causes human cyborgization does not promise only a bright future. In this context, I would like to discover ethical problems predicted in the future society and consider them ethically. In addition, I would like to propose an ethical alternative to solve this problem.

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2. Meaning of cyborg

What is a cyborg? Cyborgs often refer to humans combined with machines. For this reason, this existence feels like a virtual existence that appears only in movies and novels. In fact, cyborg is a compound word of cybernetic organism, which first appeared in 1960. American computer expert Manfred Clynes (1925~2020) and psychiatrist Nathan Kline (1916~1982) first used the word in a paper “Cyborgs and Space” co-published in September that year. In this paper, they named the modified organism Cyborg by applying technology. Since organisms usually refer to creatures with a certain self-regulation ability, the cyborgs they named are not limited to humans. Even when technology is applied to the body of animals such as dogs and cats, it can be called cyborg. [1]

When the meaning of cyborg is defined as a ‘technically modified organism’, it can be said that the types are very diverse. This is because there may be differences in degree, but there are a wide variety of technologies that can transform the human body and mind. For instance, cyborgs include people with enhanced immunity after being vaccinated against the coronavirus, people who walk with prosthetics on their amputated legs, people who take medicine to strengthen concentration, and people who live with artificial hearts. In addition, people who live by recognizing chips connected to computers in the brain can also be called cyborgs. Any person who has enhanced mental or physical abilities by applying various genetic, pharmaceutical, or mechanical techniques to the biological body can be called a cyborg.

However, considering the fact that our activities today are carried out with the help of a lot of science and technology, the concept of cyborgs can be further expanded. For example, we can rely on glasses to see things more clearly, travel long distances faster with the help of cars, and no longer have to memorize vast amounts of information thanks to smartphones. In this respect, cyborgs are contemporaries we are already meeting, and we are also ourselves living in the age of science and technology.

Expanding the meaning of cyborgs in this way, I would like to point out that in the future, we humans are likely to become cyborgs, especially combined with ‘automated machines’. The recent rapid development of computer and robotics and the success of several high-tech technologies are due to the visualization of the emergence of human actors combined with these automated machines. Automated machines generally mean what we call robots. Fundamentally, it is not easy to define a robot that appears by human literary imagination and is being implemented in reality in a single word. This is because they are objects that are being developed even at this moment. For this reason, even robot experts say it is difficult to define the identity in one word.[2] However, if you search for the word robot in *The American Heritage Dictionary of the English Language*, you can see that its dictionary meaning is “1. A mechanical device that sometimes mimics a human and is capable of performing a variety of complex human tasks on the system.”[3] In short, robots simply imply ‘automated machines that can move without human intervention’. Then, specifically, how will humans be combined with robots in the future?

3. Current development status and Prospects of Cyborg Technology

I said earlier that there is a high possibility that we will become cyborgs combined with automated machines or robots in the future. Let me now state the reason. Today’s scientists and policymakers want to create an era in which individuals connect to a central computer network and receive intelligence from information [data] and AI from time to time, while sharing information [data] and intelligence with other connected individuals. They expect that if the information and intelligence of everything, such as people and things, are shared and utilized,

individuals' intellectual ability will be greatly improved, and inequality between individuals due to differences in information and intelligence levels will disappear. A prime example of this expectation is the Smart City construction project promoted by today's scientists and policymakers from each country. Because today, the term 'smart' usually means 'connected by communication, and functioning autonomously based on data collected by sensors', and 'Smart City' means a city that applies information and communication technology to the design, planning, construction and operation of urban infrastructure to ensure that all citizens can solve problems in their daily lives, such as transportation, environment, housing, and facilities, and enjoy a pleasant and convenient life.

As such, a society in which information and intelligence of everything, such as people and things, are closely connected and communicated smoothly on a single organic net is often described as a 'Hyper-connected Society' in other expressions. A hyper-connected society is being visualized by a series of recent advances in science and technology. For example, 5G network technology and Internet of Things connect each individual closely to the surrounding objects like a spider's web, and AI, big data, and sensor technology quickly collects and analyzes a large amount of information about individuals. For this reason, each individual not only intentionally provides his or her personal information by using computers, smartphones, and SNS, but also unknowingly exposes it in his or her daily life. Thus, AI algorithms that somehow grasp an individual ones' secret state, taste, and preference will increasingly know one better than oneself. And this will make it easier for individuals to make choices and decisions within the algorithm's recommended alternatives.

In this respect, I argue that in the future, we will live as cyborgs, a creature combined with robots. Often, the question, "What is a robot?" is reminiscent of machines and devices with physical driving body. However, considering the definition of a robot, the main feature of the robot can be said to be 'automation' rather than a physical body. for this reason, although it is an intangible program, AI can also fall into a kind of robot category. AI literally means mechanical intelligence 'artificially-made' by humans. In the 1950s, the scientific community began in earnest to create AI that imitated the human mind based on computational-functionalism. Computational-functionalism understands the action of the mind as the operation of formal computational systems embodied in the brain. In other words, it is the position that there is no particular difference between the brain's action and the computer's action. In this background, the scientific community has tried to develop AI as a computer algorithm with high computational capabilities. The scientific community has recently achieved remarkable success. That is, computers that remained in the ability to calculate within human-designed programs have been developed to a level where data extracted from things can be recognized, learned, and analyzed alone without human intervention. AI refers to such an automated computer algorithm program that can repeatedly process information on its own without human intervention. Therefore, AI can be classified as a robot even if it does not have any type of body. This is why a software that repeatedly performs a specific task is called a 'bot' similar to a robot.

AI algorithms are expected to influence individual choices and decisions in a variety of areas, from relatively light and simple decisions such as choices in shopping and hobby activities to heavy and significant decisions that determine the direction of individual life, such as political decisions and life-sustaining decisions.[4] Maybe we're already cyborgs. Because, in fact, we are already affected by AI in relation to relatively light decisions. For example, look closely at the advertisement that pops up in the Internet window. We can realize that most of the things are things we need, or things we've always been interested in. Such advertisements are customized advertisements selected and provided by AI algorithms that analyzed my access to the Internet. Thanks to this, we can easily get what we want (knowledge, information, etc.). Life

with AI is faster and more efficient than ever. As time goes by, it will be difficult for us to imagine daily life without AI. Cyborgization combined with AI, so to speak, is our naturally anticipated future.

4. Cyborg's Self-Identity Problem

4.1 an anticipated change

Indeed, as many hope and expect, hyper-connected societies may improve the convenience and economic efficiency of individuals and reduce the gap between individuals by providing personalized information and generalized intelligence to make choices and decisions easier. However, this society does not only promise a rosy future. This is because it can be predicted that a hyper-connected society centered on data and intelligence will bring about certain changes in relation to the individual's 'self'. In this chapter, I'd like to discuss the problem of self-identity that cyborgs in the future can often face with these changes. So, before dealing with that, let me first state two changes that many people expect in relation to the self.

4.1.1 The birth of a variable, relative, and pluralistic self

In a hyper-connected society, the self can have variable, relative, and multiple attributes. This is because in a data-intelligence-driven society, the identity of the self is not fixed as one, and can be constantly reconstructed according to the flow of data. In other words, the identity can be formed changeably depending on how I combine and separate the information that represents **myself**. In addition, just as it is possible for a self to create multiple IDs and act as multiple selves in cyberspace, a number of identities with different personalities may be established at the same time.[5]

4.1.2 Boundary collapse between self and other

In a hyper-connected society, as Kurzweil (2000) predicted [6], the boundary between self and others may collapse. In other words, in such a society, individuals' thoughts, emotions, and intellectual abilities connected to one network are integrated and can coexist in an overlapping manner without being distinguished from each other. So, it may be difficult to distinguish between 'my thoughts, feelings, and intelligence' and 'other's thoughts, feelings, and intelligence'. In such a society, even the distinction between what AI has created (fake) and what I have created (real) will become difficult. Accordingly, the self with a unique inner self may no longer be a meaningful concept.

4.2 ethical issues

As expected changes suggest, the future hyper-connected society has the possibility to create new self-concepts that conflict with our familiar concepts of 'self as a fixed and unified entity' and 'self with a unique inner self' or disappear 'individual self'. However, saying that the concept of self as an individual entity is eliminated is the same as saying that the concept of 'individuality' (one's own nature distinguished from other people or individuals) cannot be established. If the concept of individuality becomes invalid in the future, it may be difficult for cyborgized individuals to establish their own unique self-identity. Meanwhile, failure to properly establish their own identity can lead to several serious ethical problems. I named the particularly anticipated ethical issues as follows: (1) *The problem of responsibility*, (2) *the problem of dignity*, and (3) *problem of existence*. Let's look at each one.

4.2.1 *The Problem of Responsibility*

In a hyper-connected society, the problem of responsibility that can be attributed to an individual (individual self) as a moral agent is triggered. In other words, in a hyper-connected society where it is impossible to distinguish one unique self, it is impossible to ask whose idea it is and whose action it is. If so, who is responsible when a moral error occurs?

4.2.2 *The problem of dignity*

The problem of dignity of members of a hyper-connected society also arises. Since modern times, the concept of individuality has been the basis for human intrinsic value (dignity). However, a society where everything is connected can unify the thoughts and lifestyles of its members. How can human values be guaranteed in such a society that threatens individuality? In other words, on what basis will members of a hyper-connected society be respected for their values?

4.2.3 *The problem of existence*

The existential problem of members of a hyper-connected society also arises. If one person cannot clearly answer "Who am I (individual identity)," eventually, "How should I live (moral identity)" will also not be clearly known. Then, how should members live in a hyper-connected society? In other words, how can they find the meaning and purpose of life and live a full life without wandering?

5. **How should we prepare for the Cyborg Era?**

5.1 *Suggestion (1) Recognizing the Value of Individuality*

The existing view of self that we are familiar with is the so-called 'modern view of self'. This view has dominated our understanding of ourselves since it was founded by Descartes (17th century) and elaborated by Kant (18th century). In the modern view of self, 'self', which means 'I', is generally identified with a subject with a unique subjective consciousness or freewill within an individual. This self is described as having a single, fixed and unified identity centered on one body. At the same time, this perspective highly evaluates the rational ability of the individual self. In other words, in modern culture, reason has been mainly explained as 'the ability to produce decisions without procedural contradictions by calculating or inferring information about the world perceived through sensation according to certain laws'. However, this portrayal of a priori, invariable, independent self and reason with procedural rationality and autonomy raised the value of individuals in the world, while also causing to occur discrimination and inequality against members of society who do not conform to such view of self.²

However, as the transition to a hyper-connected society became visible, a new view of self has emerged with the prospect that the existing view of self could no longer be established. Its content (e.g., the negation of the metaphysical self, the prediction of the emergence of a variable, relative, and pluralized self) can be referred to as a post-modern view of self in that it not only has no continuity with the modern view of self, but also conflicts. The post-modern

² For example, R. Brideotti(1954~), a representative posthumanist, points out the problem of 'modern human'. 'The modern human' she refers to means a 'rational agent' that modern culture defines as an ideal being. She says humans, normal people, Europeans, men, and white people belong here. On the other hand, she argues that modern culture has always discriminated against and excluded people who lack the attributes of 'reason' or who do not conform to the image of rational agents (non-human, disabled, non-European, women, and people of color).[7]

view of self is actually based on data-reductionism. It says that the only key to identifying the identity of the self is the flow of data. In other words, non-material consciousness or material body cannot guarantee the identity of the self in a hyperconnected society, and only information can reveal the self. This is why it is predicted that multiple selves will own various identities in the future.

Along with that, some people do not welcome the digitalization of their egos but see it as inevitable (in the case of Kurzweil), while others welcome it and actively pursue it. For example, posthumanists, who have been dissatisfied with the modern view of view, argue that the postmodern self may cause a loss of individuality, but unlike before, it will eliminate discrimination due to differences in consciousness or body and place all members in the net in equal positions.[8]

However, as discussed earlier, we can face a serious moral crisis when the concept of individuality is completely invalidated. Modern culture moved the source of knowledge and values outside the individual (e.g., Plato's *Idea*, *God* in the Middle Ages) to the inside, creating a concept of self as an autonomous moral subject and discovering its value (dignity of human being with self). These discoveries have made it possible for all of us today to be equally respected. In other words, individuality is a philosophical concept established by modern scholars as they newly illuminate individual rational abilities and values. However, if the concept of individuality is completely dismantled, the foundation of human dignity will disappear in an instant. So, what will we now be guaranteed dignity from? In addition, when any moral error occurs, who will be held responsible? And how can each of us manage our lives consistently if we can't clearly identify *who I am*?

5.2 Suggestion (2) Modifying Modernity

Given the previous discussions, I think that in a hyper-connected society, we should come up with ethical alternatives that can guide individual selves to establish their true identity without going through confusion. This alternative means an ethical culture that emphasizes the concept of individuality that is a base of the concepts of moral responsibility, human dignity, and individual existence, and affirms its value. This culture clearly differs from Nietzsche's dismantlementism. Nietzsche's superhuman ideas is the philosophical root of posthumanism. Posthumanism means overcoming modern humanism, which has led to numerous discrimination and exclusion. However, F. W. Nietzsche (1844~1900) aims to overthrow of all values. Similarly, a lot of posthumanists often argue for a perfect breakaway from tradition (i.e., modernity).

However, I never aim for such a breakaway. Rather, I try to improve by critically embracing tradition. This is because I believe that truth is finally acquired through a process of constantly modifying it through trial and error for many years. In other words, I understand the concept of 'individuality' that emerged after modern times as an intellectual achievement that mankind has expanded through trial and error. We can see from past history how much pain a totalitarian society that ignores individuality can inflict on a human being. In this respect, the recognition of individuality can be seen as a discovery of mankind that can never be discarded so as not to commit another mistake. So, I think there is definitely historicalness and significance to this concept. Therefore, I insist that we should maintain this concept. Then, what is the way to stick to the concept of individuality while overcoming the limitations of modern view of self?

First of all, in my view, the unique identity of the individual self is not realistically fixed, but can constantly change and be multi-layered depending on what environment you live in. For example, we often recognize that my speech and attitude at home and at work change greatly.

For this reason, what my family thinks about me and what my colleague thinks about me may be different. In other words, our identity can be formed differently depending on which group we work in. In this regard, even before transitioning to a hyper-connected society, our identity already can be said to have a multi-layered part. But even if there is such a multilayered aspect, our identity does not remain disorganized in itself. Rather, our identity can be understood and identified more collectively by one subjective consciousness. In other words, the unique single identity that encompasses various aspects of myself can **be revealed** in detail by the subjective consciousness contained in one body. However, the ability of reason to identify such an unique identity needs to be described differently from the previous one. Here I'm going to get some help from the modern philosopher, Charles Taylor(1931~), a modern philosopher.

According to Taylor, human reason has the characteristics of 'contextualized autonomy' and 'substantive rationality'. [9] He points out that the real world we live in is not an explicit object. The world is a complex and obscure context and flow. So we can't grasp the world we're in contact with at once. Therefore, he explains that we should materialize the point by consciously clarifying the context and flow around us. In other words, when each of us specifically describes and expresses the world in language, the world reveals its form. Taylor says reflection is necessary to describe and express things. In other words, his reflection is the work of 'self-interpretation'. [10] Through these works, we can evaluate the good or the bad, the high or the low of something. In short, we can find and do what is more appropriate and reasonable in some situations through self-interpretation work. Taylor claims that this is what our reason does. Therefore, Taylor's reason, which is based on dignity, cannot be said to be a simple cognitive or computational ability of objects. [11]

Similarly, I believe that even when we want to identify who we really are, we must perform these specific descriptions and representations. Our identity can't basically be reduced to matter or data (no matter how much data I've produced, if they don't have any meaning to them, they're not worth anything to me). Our identity can only **be revealed** when we perform very complex tasks such as interpreting and evaluating the meaning of the object by myself while interacting with the object facing our reason, and describing and expressing the object in detail. Although it is expressed as being revealed here, in fact, the unique self-identity (individuality) is close to what the self, the subject of existence, intentionally **creates** by reflecting on one's inner self.

Therefore, it is necessary to awaken the importance of so-called 'self-interpretation' to cyborgs who will live in a hyper-connected society. This is because the existence of 'I' is never a simple sum of data. Our identity or individuality can inevitably be confirmed in the efforts of our own conscious clarification and self-expression. This work can never be done by AI modeled after the concept of modern reason. This is because today's artificial intelligence is only a computer built from the beginning by imitating only mechanical cognition, calculation, and procedural reasoning, which are part of this performance. So, no matter how much cyborgs live a fast and efficient life combined with AI, their own identity cannot be confirmed only depending on AI. Therefore, it is necessary to emphasize the importance of individuality to cyborgs in a hyper-connected society, and further convey the importance of work that enable them to be identified. Furthermore, it is necessary to remind them how to do such work.

6. Conclusion

The purpose of this study is to analyze ethical problems that may arise in an individual's self-identity against the backdrop of a future society brought by advanced science and technology and to suggest alternatives. The development of AI, sensors, network technology, big data, and computer cloud systems will connect everything, including people, objects, and space, to each

other through computer networks in the future. Accordingly, it is expected that information on all things will be produced, collected, shared, and utilized. That is, it is predicted that a hyper-connected society in which things-things, human-things, and human-human connections will emerge, and in this society, the boundaries between the real world and cyberspace, body and machine, self (I) and others will be blurred. And when defining cyborgs as organisms with various technologies, it can be predicted that future humans will naturally become cyborgs fused with various technologies. In particular, I predict that it will be a cyborg connected to an automated machine called AI in the future.

For this reason, we may worry that in the future, new concepts of self that conflict with the concepts of 'self as a fixed and unified entity' and 'self with a unique inner nature' that are familiar to us will appear, or the concept of 'individual self' will disappear. This concern stems from the fact that the concept of independence cannot be established if the concept of self as an individual entity is eliminated. If the concept of individuality is nullified, the following ethical problems can arise:

(1) The question of responsibility (*If you can't tell whose thoughts and actions are mixed up with each other, who will you hold responsible for when a moral error occurs?*)

(2) The question of dignity (*how can human values be guaranteed without the concept of individuality? In other words, on what basis will members of a hyperconnected society be respected for their dignity?*)

(3) the problem of existence (*the meaning and purpose of life (moral identity) be identified while individual identity is unclear? How is that possible?*)

We could face serious moral turmoil if these problems actually arise. Thus, we should not abandon the concept of individuality completely. The concept of individuality can be seen as the intellectual heritage of mankind established through trial and error for a long time. Therefore, by maintaining the concept of individuality, it is necessary to help cyborgs maintain their identity consistently and establish themselves properly in the future. In this regard, I would like to present a modified version of the modern view of self. In short, this revised version is a view that emphasizes the special ability of the self that the existing version overlooked. The modern view of self is understood that the self is a fixed and unified entity and has its own inner self. In addition to it, I would like to evoke that we have the ability of reason (i.e., substantive rationality and contextualized autonomy) to interpret and reflect on our own unique purpose and direction of life by integrating multiple identities formed by interacting others (and the world). This differs from the ability to infer and calculate mechanically. When we recognize these abilities, we humans can finally find an answer to the question, **how to live?**

In the era of science and technology, which develops day by day, an ethical culture should be formed so that cyborgs can establish their identity properly. However, ethical culture cannot be formed and spread in a day or two. It takes a certain amount of time to form an ethical culture. Therefore, a series of long-term efforts are required to form and spread this culture. this study evokes the importance of the formation and spread of this particular culture. the next study will discuss specific ways to form and spread this culture.

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