

My Ghost is Intertwined in the Networks: The Problem of Agency and Boundary of Self in Cyberspace

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1. Introduction

The COVID-19 Pandemic and its variants has led more people than ever before to engage with the Internet for a much longer time than usual. We are now immersed in cyberspace. During this time, our dependence on the Internet may have grown to the point where we can call it an addiction. In *Ghost in the Shell* (*Kokaku-Kidotai* in Japanese), a Japanese cyberpunk science fiction animation by Mamoru Oshii, computer technology has advanced to the point that it allows people to interface their biological brain with various information technologies. The main character in *Ghost in the Shell*, Major Kusanagi, is a cyborg with a fully prosthetic body, in which her cyberbrain is contained.

Kusanagi seems to be a cyberpunk version of the future image of the human body that the extended mind thesis (EM) might suggest. EM has become a prevailing view in the field of the philosophy of mind and cognitive science, a view that claims that the mind is not simply ensconced inside the head, but extends to the whole system of brain-body-environment (Clark & Chalmers 1998; Clark 2008; Wilson 2004, Gallagher 2008; Menary 2010; Noë 2009; Thompson 2007). Our psychological functions are based on larger systems extending outside the skull and skin. This is a theory put forth as the definitive refutation of the 17th century philosopher Descartes and his modern scientific successors, the mind-brain identity theorists.

However, the EM theorists were not the first to argue against Descartes. Rather, many philosophers of the late 20th century were anti-Cartesian. For example, the phenomenologist Maurice Merleau-Ponty was one of the pioneers of EM theory. He pointed out in his *Phenomenology of Perception* (1962, originally published in 1945) with the examples of the cane and the automobile that tools are incorporated into the body as extensions of the body. We can outsource some parts of our mind. The mind is embedded in the environment through the body from the beginning. By inventing tools and connecting the body to the tools, we humans have embedded our mind in the environment mediated by the body-tools.

We use tools to transform our bodies, to modify our environment, and so that we situate our psychological functions within the world modified by our transformed body. The computer and its network are undoubtedly the greatest invention of the 20th century. Our minds have been greatly transformed by the artificial brains we have created and the wireless nervous systems that extend beyond our skin. If my mind is extended and incorporated into computer networks, cyberspace, i.e., domain of the global technology environment as standing for the global network of interdependent information technology infrastructures, would that change the nature of consciousness? Global informational network is also a kind of tool, but it is a tool as information,

whose physicality (thingness) is less perceptible than that of conventional tools such as the cane, papers, and the automobile. Tools transform human existence, but what kind of transformation do cyberspace bring about? In particular, I would like to examine whether our sense of self, the boundary of self, is transformed according to the immersion of cyberspace.

If EM theory were correct, the boundary between the concept of self and other would be fundamentally ambiguous and open to our surroundings. We could feel the ball hitting the bat instead of our own hand, and we could judge whether our car could pass through this narrow alley as if it were our own body. What would these extensions of our corporeality become if our mental functions were connected to cyberspace? As we will argue it in a later section, the connection of our mental functions to cyberspace here does not simply mean that we have access to the information in cyberspace. Can the information in cyberspace can be felt as something that belongs to us, like our memories, just as a tennis racket or a car can be felt as an extension of our own body? Can Major Kusanagi have a boundary between the inside/outside and myself/other's self when she connects her brain with cyberspace? The animation gives us the image that Kusagagi's mind encompasses cyber space. Is this possible?

I shall discuss from a (post)phenomenological point of view two problems regarding EM towards cyberspace: one problem concerns how to demarcate the boundary of the agent (demarcation problem), and another is in what sense we are the owner of the mental activities (ownership/ autonomy problem), especially those in the cyberspace. I would finally like to point out that the human mind is deindividuated by the influence of cyberspace, that is, the mind becomes like a Cartesian cogito. A Cartesian cogito is one that, by being detached from the body, becomes numerically indistinguishable from other *cogitos*. The same thing will happen to the mind in cyberspace. Such a Cartesian cogito does not merge with the cyberspace in the form that an animation of Ghost in the Shell showed, but becomes a state of losing sight of others while merging with them.

2. Postphenomenology and Extended Mind

Don Ihde (1993, 2002) further developed Merleau-Ponty's argument about the self being transformed by tools and put forward the position called as postphenomenology. For classical phenomenology, the human subject is the body proper with flesh and blood. However, the modern human body is almost always mediated by technology, both in perception-cognition, and in action. Ihde said that "The partial synthesis between body and instrument makes possible, within phenomenological history, a way to overcome the classical phenomenologists' apparent strong distinction between a lifeworld and separate "world of science." (2002, p.xvi). Moreover, the environment surrounding the human subject is also ordered by technology. Postphenomenology is a phenomenology that introduces the idea that modern humans are living in a body and that the world that is framed by technology. It is Peter-Paul Verbeek is further developing this idea towards the morality of technological things (Verbeek 2011; Rosenberger and Verbeek 2015). "When taking the notion of technological mediation seriously, claiming theta technologies are human agents would be as inadequate as claiming gar ethics is solely human affair. The isolation of human subjects from material objects, which keeps us from approaching ethics as ya hybrid rather than a huma affair, is deeply entrenched in our metaphysical schemes (Verbeek 2011, p.13). Postphenomenology is, as it were, a cyberpunk phenomenology and a pioneering theory for EM in a sense.

As mentioned above, the extended mind thesis affirms that the mind is not simply ensconced

inside the head, but extends to the whole system of brain-body-environment. Although there are many pioneers of the idea such as Nobert Wiener (1948), Merleau-Ponty (1962), Gregory Bateson (1972), Hutchins (1980, 1995) and others, this thesis was first proposed by A. Clark and D. Chalmers (1998) and has been developed in these 20 years by many philosophers and cognitive scientists, and is becoming a prevailing view in these fields. According to EM, brain alone cannot have mind, but our mental functions are fundamentally based on larger systems extending outside the skull and skins. Noë states as follows: “Consciousness is not something the brain achieves on its own. Consciousness requires the joint operation of brain, body, and world. Indeed, consciousness is an achievement of the whole animal in the environmental context. [...] Brain don’t have mind; people (and other animals) do”. (Noë2009, p. 10).

For example, it is said that calculation is a function of the mind, a kind of thinking, but in fact, how do we calculate? We may remember the answers to very simple arithmetic operations, but when the formulas get even a little complicated, most of us can’t do the calculations without paper and pencil. More complex calculations are impossible without a calculator, and even more complex calculations can only be done as a joint effort of several people, such as asking for a check of a company account. Computation is never a simple, single ability. It is something that can be accomplished by using tools and machines with one’s own body and by communicating with others. When we say we are thinking, are we just crossing our arms and groaning? When we solve a problem, we write down various ideas on notes, look at them and write down what we come up with again. We also look up various books, documents, web pages, and data related to the problem to inspire ourselves, and wander around on the street to see if there are any good hints somewhere. This is what it means to think; it is a series of corporeal behaviors for a kind of self-education. It is a far from computer calculation based on a decide program. A computer does not come up with questions, nor does it think. Our notes and sketches are not mere record of what passed in the head, but it is a part of our thinking. Our thinking is only possible on the cognitive loops among brain, body, and tools.

Or, when a person with Alzheimer’s disease can get back to his house by the help of a map, a memo, and asking to his neighbors, we should say that that person memory exists literally in the map, the memo, and the neighbors. Even if you are in good health, you do almost the same thing. Since the installation of online navigation systems in our cars, we have become less and less familiar with the road, to the point where we can hardly drive without it. The car navigation systems are nothing but extended perceptual capabilities and memories of car drivers, but this has been true for a long time in ship operations and airplane flights. We are outsourcing our memories and perception for mobility to maps, online navigation systems, and even to humans.

Thus, our mental functions such thinking, memory, or perception in everyday life thus deeply depend upon different kinds of tools, artifacts, and artificial environment. According to Clark (2003), the greatest differences of human beings from other animals are the human’s capacity to fully incorporate tools and supporting cultural practices into our existence. These human mental functions are realized as a whole network of the actors in the humanized environment, and therefore cannot be reduced to its elements such as the brain or the nervous systems. The humanized environment, including tools and artifacts as its elements are maintained, controlled, and organized by humans. In this sense, the humanized environment is also a product of the social institutions. A mailbox is a facility that enables mailing, but it works because of being incorporated in the postal system maintained by human as a social institution. Accordingly, as Gallagher and Crisafi (Gallagher

and Crisafi 2009; Crisafi and Gallagher 2010) pointed out, not only tools, but also certain social institutions, what they call 'mental institutions' help us to accomplish certain cognitive processes. They count as mental institutions include legal systems, educational systems, cultural institutions, like museums, and even the institution of science itself. The use of an educational system to learn something constitutes a case of complex epistemic action, and is an instance of extended cognition. In fact, in today's society, it would be almost unthinkable to learn anything without some kind of educational institution or system.

3. Technology and Corporeality

Thus, EM theorists just refuse the Cartesian standard of what goes on in the head and think of some mental processes as working "out there" in the world. In modern society, our mental functions are realized through our corporeality connected to technology and our humanized environment also modified by technology. The researchers of postphenomenology have been studying on Human-Media-World relations, but they are not so interested in the problem of inside/outside boundary and of agency (Eede, O'Neal, and Wellner 2017; O'Neal 2016). I think there are four types of relationships between the use of technology and human corporeality.

- (1) Cyborgization: The human body internalizes technological product i.e., machine. In this case, the boundaries of the human body do not change. A part of the inside of the body is connected to the machine, and its functions are supplemented or enhanced by the machine. Human and machine become integrated into one, facing the outside environment: For example, cochlear implant, mechanical heart, artificial lung, and so on.
- (2) Functional cyborgization: The human body is unified with machine, but is removable (Warwick 2004). In this case, the boundaries of the body are extended while the tool is being used. Tools become an extension of the body, and we feel the boundary between inside and outside on the surface of those tools. It is no different from cyborgization in that man and machine become one to face the outer environment. However, its extensionality only occurs when the movement of the tool is coordinated with the body movement. When the tool is removed from the body, it returns to being a mere object outside of oneself. This is true in the case of piloting the vehicle like car driving, wearing night vision goggles, putting on a powered suit, and so on.
- (3) Remote cyborgization: The human body is unified with machine in a remote way. This is a kind of functional cyborgization. You can feel the tool as an extension of your body, regardless of the physical distance, as long as the movement of your body, the movement of the tool, and its sensory feedback are synchronized. What happens in rubber hand illusions also happens at a far distance. In the rubber hand illusion, people feel the tactile sensation from the stimulation of a rubber hand placed in front of them, instead of from one's own hand, which is also stimulated but hidden under a table (Botvinick and Cohen 1998; Honma, Koyama, Osada 2009; Ramachandran and Hirstein 1998; Ramachandran and Rogers-Ramachandran 1996). The cases of remote cyborgization are online surgery, piloting an unmanned bomber, manipulating of a deep-sea robot to explore the ocean floor, and so on.
- (4) Tool manipulation: The human body manipulates machine as an object and thus functions in cooperating with it. Maneuvering a large ship is too weakly linked to one's own bodily movements of the helmsman, and the perceptual feedback from the hull is also too weak. Hence, large vessels

are objects to be manipulated for a seaman and do not feel like an extension of one's own body. The computer is an object to be manipulated in front of you, and it is not usually integrated with you. A computer is a necessary component of your calculative function, but you never feel your corporeal boundary with the computer. The same can be said about smartphones.

4. Self-boundary and Ownership

In each case, humans are using a machine in order to cope with the environment. Whether a machine becomes the extension of body or not depends upon how the movement of the machine synchronizes with the body movement and the sensory-perceptual feedbacks from the machine. As Merleau-Ponty has affirmed, the incorporation of tools into our own body is due to the function of corporeal schema or body image (Merleau-Ponty 1962, pp.91-147). According to him, corporeal schema is the scheme by which different sensory and motor processes function together in synergic unity; this scheme provides us with a way to access towards the world and objects. There is a condition to have this kind of extended body experience: the things should move together with one's own body movement. You can feel a tennis racket as an extension of your arm, and also feel directly and precisely where a ball is hit on a racket. But this kind of experience happens only when you are swinging a racket. Your body becomes inflated to the boundary of your car body, but only when you drive it by yourself. "Psychologists often say that the body image is dynamic. Brought down to a precise sense, this term means that my body appears to me as an attitude directed towards a certain existing or possible task" (Merleau-Ponty 1962, p.100). The bodily and motor intentionality forms a scheme that integrates the whole body, and tools are incorporated into this scheme of motor intentionality by the subject's activity of working towards the world.

In the cases of (1) ~ (3), the extension of one's own body is recognized, while (4) provides a sense of possession but not a sense of agency. This shows that a sense of ownership is something we feel about an object that we feel is part of us but have not fully assimilated. The spatial boundary of our body changes by the function of corporeal schema. But we think memos or memory disks as necessary components of our memory, but we don't feel them as a part of his body. The artifacts that you don't move together with your own body remain exterior to you. You may feel these artifacts as your belongings but not as the extension of your body. The demarcation of the boundary of the agent depends upon the motility. Although you don't feel your computer, memos, or memory disk as an extension of the body, you may feel a kind of ownership of them. You feel a sense of ownership of them, because they are under your control. Philosophers have maintained that the sense of ownership would be derived from the sense of controllability (Cassirer 1955; James 1981; Marcel 1935). As William James has said, "it is clear that between what man calls me and what he simply calls mine the line is difficult to draw. [...] we see then that we are dealing with fluctuating material; the same object being sometimes treated as a part of me, at other times as simply mine, and then again as if I had nothing to do with it at all" (James 1981, p. 279). You are the owner of the mental activities of EM when we can successfully use the exterior components of EM such as maps, notes, and so on in order to accomplish some purposes.

5. Self in Cyberspace

As we saw, we even feel sensory perceptions in that artificial part of the extended body. This phenomenon can be interpreted as one's body taking the tools in its corporeal schema. Does

connecting to the cyberspace lead to this kind of expansion of the self? The assumptions we see in cyber punk science fictions can be divided into two categories.

One is prostheticization. The machine becoming a part of one's own body or living body incorporates machine. This means mechanization and remote control of the body which (1) and (3) we saw in the previous page. In a sense, this is a phenomenon that has already been realized. Another is the connection of the self to cyberspace. This "connection" seems to be based on either of two assumptions: assumption (a) that the self lives in cyberspace and assumption (b) that the self unites with cyberspace. The assumption (a) is found in novels and movies such as William Gibson's novel *Neuromancer* (1986), and Lana and Lilly Wachowski's movie (1999) *The Matrix*. This idea makes a completely unrealistic assumption that every aspect of reality is realized in cyberspace and reality exists in a doubled or multiplexed form. This assumption is similar to the thought experiment called the "brain in a vat" which is criticized as incoherent by many philosophers including Hilary Putnam (1981). The assumption (b) supposes that the self becomes a part of cyberspace or is assimilated into it. This assumption supposes that cyberspace can be felt as something that belongs to us, like our memories, just as a tool can be felt as an extension of our own body. This idea can be seen in the animation, *Ghost in the Shell*, mentioned at the beginning of this article.

To some extent, prostheticization has been already blurred certain boundaries between the self and other (remote surgery, remote controlled aircraft). As in the case of rubber-handed illusions, it is possible to feel the boundaries of the self, like one's own limb, in that remote instrument, if there is sensory feedback of the sense of motion from the peripheral parts.

However, is it possible to have a situation in which the self unites with cyberspace and expands into it as in the assumption (b) ? In the assumption (b), it is presupposed that the cyberspace is consists of a kind of floating ideas or images and those on our self can be mixed on the brain-network space. I think that this is a version of Cartesian cogito that supposes the ideas on the theater of consciousness. However, if information is conceived of as something like an idea floating on the theater of consciousness, this seems to have many difficulties as to take it seriously.

We cannot conceive of information whose physical properties have all but disappeared. We cannot conceive of information that exists in a form that is either a phonetic difference, a visual form such as writing, or a gesture that is still visually grasped, such as sign language. It would also be too naive to assume abstract "meanings" that are realized in any various media of expression. Meaning changes depending on the medium in which it is expressed. The same sentence will have a different meaning if it is conveyed orally in person, by letter, or by mass media. As McLuhan (1964) says, the media is already the message.

The assumption (b) also ignores the semantic character of information, i.e., reference to objects in the world. If a sign has a meaning, it must finally be grounded in the real world, even in the case of abstract of words like imaginary number, infinity, etc. If information has meaning, it must refer to some object in the world which the receiver and the sender share. And the meaning also must connect to the behaviors towards that object. Information that merely flows into consciousness could not get any meaning unless it is embedded in the referring behavior or attitude of the receiver. For example, if a piece of information suddenly comes into our consciousness, it cannot have any meaning if it is not related to any directive function towards the real world. It is the same as if I suddenly hear the radio in a completely unknown language, for example, Ukrainian, and does not understand any meaning. If a Ukrainian person says words while showing some attitude with gestures in a real situation with which I am also involved, then there will be room for interpretation (Cf. Burge 1994; Farkas 2006;

Putnam 1975, 1981). More generally speaking, words have different meanings depending on how they are used. Pragmatics is not outside of semantics, but as Wittgenstein and other philosophers of language affirmed, meaning is use. Otherwise, we would not be able to understand the phenomenon of a word changing into a word with the exact opposite meaning. The Japanese slang word “yabai” used to mean “bad” or “dangerous” only 20 years ago, but now it has changed to mean “fantastic” or “impressive”.

6. Owner of information

But another fundamental question on the self which is connected to cyberspace is to whom the information, the word, the language belongs. Who owns them and how? When you look something up on the Internet and get information, how do you know that it is yours? The information is on my computer screen, and I am reading it, but don't understand it in its entirety yet. In such a case, I would not be the owner of the information yet. If I can grasp the content, repeat it to myself, or summarize it, then I will feel that I own the information. However, as for the origin of the information, at this point, I know that I got it from the Internet. I feel that the information now belongs to me, but it came from outside. However, as the years go by, you may remember the content of the information, but you may not know where you got it from. It is as if the cash or money in my bank account belongs to me, but I don't know or forgot who gave it to me. Information is like money or security.

Here we should refer to Bakhtin's (1980, 1986) idea “ventriloquism” of language that casts doubt on the presumption that we own our language. We begin to learn language by imitating and borrowing another's voice, and gradually we make their expression our own. In a sense, we own or appropriate the words of others when we learn language. But this appropriation of language is not complete. There are the utterances which we can use, but are assimilated with difficulty in one's own context. They remain borrowed even though we use them frequently. Bakhtin's concept of “ventriloquism” or double-voicedness represent the estrangement which necessarily accompanies in learning language from others.

According to Bakhtin, half of our speech is others'. Both whole utterances and individual words can retain their alien expression, even though they can also be re-accentuated. “Our speech, that is, all our utterances (including creative works), is filled with others' words, varying degree of otherness or varying degree of ‘our-own-ness,’ varying degree of awareness and detachment. These words of others carry with them their own expression, their own evaluative tone, which we assimilate, rework, and re-accentuate” (Bakhtin 1986, p.89).

This is the reason why our language is multilayered and polysemous. In fact, language is also a kind of multi-corporeal expression in this sense. What Bakhtin emphasizes here is the thorough corporeality of language. Language is acquired in a way that overlaps the corporeality of those who teach it with that of those who learn it. There is no meaning to language that is devoid of such corporeality of its users and the circumstances which it is used. The meaning of a word as it appears in a dictionary is not even a meaning if there is no one to read and use it.

If so, there are no neutral ideas which are free from corporeal and pragmatic context of language. If language appears neutral and impersonal, it is because authority uses dictionaries, the media, and the educational system to enforce the “legitimate usage” of language to people (Kono 2011, Chap.4). The so-called floating concepts or information on consciousness have, even though there are such things, neither meaning nor utility for users. In the unlikely event that it is accompanied by physical

properties such as speech or writing, I do not see how it can be used. How is it possible, for example, that I can suddenly think of a Buddhism practice term in Khmer language or a classical medical term in Akan language when I know nothing about the Khmer Buddhism practice system or classical medical drugs in Ghana as well as their languages before? Such ideas, concept, or information should remain simple meaningless noise or signals. We will not know that they are meaningful words, nor will we know how they came up with them in the first place. As Bergson pointed out a long time ago, recalling and using stored information requires a connection to the context in which it was used (Bergson 1911). A person who has never been to Cambodia or interacted with Khmer people in Khmer would not be able to recall that Khmer language installed into the brain without knowing it. The above assumption is not only based on a false idea of information, but also on a complete misunderstanding of remembering. The mechanism of human memory and remembering probably very different from the process of the input and output to a computer. As the classical work of Bartlett has shown, the metaphor of storage or archive in the brain is fundamentally misleading for the studies of memory (Bartlett 1932; Danziger 2008; Mori 2011).

As we saw, there is a condition to having this kind of extended body experience: the things should move together with one's own body movement. You can feel a tennis racket as an extension of your arm, but this kind of experience happens only when you are swinging a racket; a racket in your bag is just an exterior object for you. Also, you never feel a racket as an extension of your arm when you merely hold it without swinging. Your body becomes inflated to the boundary of your car body, but only when you drive it by yourself. A thing will be incorporated into your body, when you move it by your own body.

Thus, through the acquisition of habits, our body takes the exterior objects in its functional structure and dilates our existence over the surface of body. The sense of the boundary of one's body extends to the tool which we can move and control as we intend, together with one's own body. Thus, the sense of the boundary of one's body must be closely related to the sense of mobility. On the other hand, a tool which is not connected with your bodily movement does not provide a self-expansion experience to you, even when it is a necessary constituent of your mental function. The same can be said about the use of information and language. As Bakhtin pointed out above, we can only make them our own when we can effectively use them in the real world to communicate with others. It is only when we are able to use information and words realized as sound or wiring, that we can feel that we appropriate them. If it is not the case that you move something with your motor skills and have sensory-perceptual feedback from the world, you will never feel that something is part of your body. In this sense, cyberspace and the human body will never merge.

Conclusion

The information in the cyberspace lacks such corporeality and may be nothing more than digital signals that is detached from context and situation. It lacks meaning and directs speakers nowhere. The ideas that arise in the disembodied cogito that Descartes refers to cannot have a power of referring, denoting. A meaningful direct connection between the self and information in cyberspace seems to be impossible. It is just as even if a Swedish child born into a Western family could memorize all the ink shapes in the Japanese Six Law Books by her sheer visual memory, it does not mean that the child still knows about the Japanese legal system, much less that he could become a Japanese lawyer. A human being would not be able to feel a sense of selfhood in information without

one's corporeality. The prostheticization in cyber punk science fictions can be realized, but the images that human self which is united with cyberspace nothing but a modern version of the mistake of Cartesian theater hypothesis.

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