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Ihde's Encounter with "Technological Determinism" in *Technology and the Lifeworld*

By
Hossein Kaji

A Major Research Paper
Submitted to the Faculty of Graduate Studies
through the Department of Philosophy
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the Degree of Master of Arts at the University of Windsor

Windsor, Ontario, Canada

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Ihde's Encounter with "Technological Determinism" in *Technology and the Lifeworld*

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July 16, 2020

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ABSTRACT

Ihde's project is an intellectual challenge with elements of hard technological determinism. Apart from different accounts of hard technological determinism in the literature of philosophy of technology, it can be regarded as a view that focuses on determination of a certain direction by using given technological artifacts regardless of other forces and contexts. At the cultural level, it means a single, massive trajectory happens by the rise of high-technological culture and its attainment as a world culture. I believe that Ihde's project cannot be fully understood unless one thinks about its challenge while keeping in mind this meaning of technological determinism. This is what this paper aims to pursue, namely the description and evaluation of his challenge with technological determinism. The paper has six interconnected sections. After an introduction, in Section 2, I will explore "postphenomenology", which is Ihde's philosophical and intellectual approach toward human-technology relations. In Section 3, I will emphasize Ihde's challenges with the elements of technological determinism. In addition, because of the relation of technological determinism and technological ethics, I will try to illustrate normative aspects of Ihde's project in Section 4. Then, I will show the intellectual dialogue between Ihde and Heidegger in Section 5. In summary, Sections 4 and 5 will show some consequences of Ihde's confrontation with technological determinism that will be developed in Section 3. Finally, Section 6 focuses on a critical evaluation of Ihde's dialogue with technological determinism. In this section, my main emphasis is making some distinctions to decrease the analytical deficiencies of Ihde's project on hard technological determinism.

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1. An Overview: Ihde's Contribution in the Philosophy of Technology

The philosophy of technology is an emerging discipline whose roots date back to Martin Heidegger's tools analysis in *Being and Time* (Heidegger, 1927). In this book, Heidegger originally and creatively establishes a kind of hermeneutics of "human-tool relations" in which a clear distinction between two modes of being, two distinct relations of human-tool, are explored. For Heidegger, *Zuhandenheit* (ready to hand) and *Vorhandenheit* (present at hand) are two distinct modes of being in the world with their own specific features. According to Heidegger, *Zuhandenheit* is a "mode of being in the world" that shows itself in practice. For example, when one utilizes a hammer to hit a nail, the *Zuhandenheit* is constituted; the hammer is used to (in order to) do something. Regarding Heidegger's phenomenology in this example, the resulting function is pushing a nail; the hammer is not a "thing", rather it is a mode of being in the world used in order to do something. The *Zuhandenheit* is defined as the function of a tool which is designed in order to do something (Heidegger, 1927/2010, pp. 69-71). At this level, a thing appears as "equipment" (tool). Further, let us consider the outcome of a situation where there is an issue during the process of hammering (i.e. the handle breaking). In this situation, the relation of *Vorhandenheit* is formed. For Heidegger, the first relation with tools is an authentic one that is practice-oriented and context-oriented. On the other hand, *Vorhandenheit* is a theoretical relation that places tools outside of their usual context and occurs when the traditional utility of the tool fails in some way (Zimmerman, 1990, pp. 139-141).

By comparing these two relations, Heidegger shows that the *Zuhandenheit* relation ontologically is prioritized over the *Vorhandenheit* relation, namely, practice precedes theory in our real lives. The ontological primacy of *Zuhandenheit* over *Vorhandenheit* means that *Zuhandenheit* is an authentic mode we live within the usual life. Meanwhile the second relation occurs when the context and

wholeness of “ready to hand” relations are obstructed or impeded.¹ This is one important aspect of “the practical turn” in the history of philosophy that is a central concept for Ihde.

Don Ihde is profoundly influenced by this new approach toward “human-tool” relationships. He sees Heidegger’s tool analysis (ontological primacy of *Zuhandenheit* over *Vorhandenheit*) as the practical turn in the history of philosophy.² For Ihde, the practical turn occurs when the priority of *Zuhandenheit* over *Vorhandenheit* is identified.³ Ihde’s project expands upon, but is not restricted by, this traditional notion. For example, in *Technology and the Lifeworld* (1990), Ihde demonstrates the main elements of Heidegger’s tools analysis and includes many case studies to show the practical turn in the history of philosophy.

Borrowing Mitcham’s famous distinction in the philosophy of technology, Heidegger is a “humanities philosopher of technology”, one who is against the “engineering philosophy of technology”. A humanities philosopher of technology focuses on the primacy of the humanities over technologies and emphasizes interpretative efforts to understand the essence of Technology (Mitcham, 1994).⁴ According to Mitcham, an “engineering philosopher of technology” prefers the primacy of technologies over humanities and case studies about technologies instead of thinking about the essence of Technology. In this context, Mitcham reasons that Heidegger seeks an ontology for technologies. Further, Mitcham believes that Heidegger is not appreciative and/or optimistic in his approach to

¹. I will further explore the philosophical relations between Heidegger and Ihde in Section 5. What I wrote here is my reading of (Heidegger 1927/2010, pp. 68-95) and (Olsen et al. 2008, pp. 65-70).

². In Section 5, I will show that this primacy, for Ihde, is an ontological-historical priority.

³. Ihde has highlighted this view in different writings. For example, see (Ihde, 2010, pp. 56-73) and (Ihde, 1979, pp. 103-129).

⁴. I use Technology (capital T) to remark that this approach frequently believes in one essence for technologies.

technology and is not interested in experimental studies. Thus, these characteristics make Heidegger a humanities philosopher of technology (pp. 39-55).⁵

Mitcham (1994) sees Ihde, like Dewey, as an engineering philosopher of technology. For Mitcham, an engineering philosopher of technology is interested in the internal features of technologies, criticizes the critics of technology, and highlights the importance of technology in human experience. This philosophy does not consider deeply socio-political applications and focuses on technologies more than philosophy (pp. 75-78). However, I argue that this overall picture is not correct. Ihde is at the intersection of humanities and engineering philosophies of technology. He is interested in pragmatism, case studies, internal characters of different technologies, and has some appreciation for the history of technology. In addition, Ihde is a phenomenologist (or postphenomenologist as he calls it) of technology. Therefore, Ihde is familiar with the humanistic philosophy of technology and uses its methods and themes in his writings, and his projects are filled with elements that for Mitcham are the humanistic and engineering philosophies of technology. In summary, unlike Mitcham's view, I see Ihde as both an engineering and a humanities philosopher of technology. Ihde's philosophical dialogue with Heidegger was originally explored in *Technics and Praxis* (1979), one of the first books on the topic of the philosophy of technology in the Anglo-American philosophy canon (Albrechtslund, 2003). As previously mentioned, Ihde's *Technology and the Lifeworld* (1990) is arguably the most important book in the field. By borrowing the "phenomenology of technology" from Husserl and Heidegger, Ihde pursues diverse case studies, develops different thought experiments, explores the relations of technology and culture, refers to his own experiences with technologies, rejects any utopian or

⁵. We can see a summary of the subjects and current waves of philosophy of technology in (Franssen et al, 2004).

dystopian approach to technologies, and finally creates influential concepts and terms in the philosophy of technology.

Besides their intellectual openness, Ihde's writings are distinctive in the literature of the philosophy of technology and incorporate a variety of personal experiences and stories. Ihde also refers to these personal experiences in a way that reflects the philosophy of technology as an interpretation of his personal life. In other words, these concrete narrations are not inconsistent with Ihde's main philosophical questions and projects. Additionally, he is interested in using different examples and allegories. For example, Ihde (1990) highlights the allegory of the "Garden and Earth" to make a distinction between a lifeworld that consists of various technologies and a lifeworld that does not (pp. 11-20). Ihde presents interesting concepts to illustrate different relationships with technology. Particularly, Ihde introduces the concepts of embodiment, hermeneutic, alterity, and background relations to reveal how tools and technologies have different functions in different lifeworlds.⁶

Ihde's approach toward the history of philosophy of technology is unique and remarkable. The first unique feature of his project is that he is not usually interested in evaluating and criticizing other philosophers of technology. When Ihde refers to the writings of other philosophers— such as Feenberg (2003, 2005), Mitcham (1994), Haraway (1991), Borgmann (1984), and Dreyfus (1991, 2001) – Ihde shows great sympathy and respect for them. The red line for Ihde exists in the practical turn in the philosophy of technology which returns to Heidegger's distinction between *Zuhandenheit* and *Vorhandenheit*. Ihde even rejected Thomas Kuhn's project, because he is unable to reconcile the practical turn in the history of philosophy, and specifically in the philosophy of technology (Ihde, 1991a, p. 16).⁷ Apart from this obvious criterion, Ihde rarely has critical dialogues with other

⁶. We will explore them in Section 2.

⁷. This viewpoint will be highlighted in Sections 2 and 5.

philosophers of technology. He is a “synthetic” philosopher who borrows what he needs from other philosophers, but in the end can develop his own project.

What is his project? From one aspect, I suppose his project is an intellectual challenge with elements of hard technological determinism. Apart from different accounts of hard technological determinism in the literature of philosophy of technology, it can be regarded as a view that focuses on determination of a certain direction by using given technological artifacts regardless of other forces and contexts (Ihde, 1979, p. 42).⁸ At the cultural level, it means a single, massive trajectory happens by the rise of high-technological culture and its attainment as a world culture (Ihde, 1990, p. 123).⁹ I believe that Ihde’s project cannot be fully understood unless one thinks about its challenge while keeping in mind this meaning of technological determinism. This is what this paper aims to pursue. Even though I argue that one can read the project by emphasizing other topics such as instrumental realism, science-technology interactions, bodies in technologies, technoscience and so on, I will prove that without focusing on Ihde’s dialogue about technological determinism, the other dialogues may not be understood properly. This is what I want to do in this paper, namely the description and evaluation of his challenge with technological determinism. My point is that the indeterministic characteristics of Ihde’s philosophy not only starts by his postphenomenological approach, but continues by his dialogue with technological determinism. The final position is a synthesis between these two different theses.

My paper has six interconnected sections. After this introduction, in Section 2, I will explore “postphenomenology”, which is Ihde’s philosophical and intellectual approach toward human-technology relations. In Section 3, I will emphasize Ihde’s challenges with the elements of

⁸. I emphasized Ihde’s own reading of hard technological determinism.

⁹. In this paper, when I speak about technological determinism and do not refer to a specific account, I mean this definition of it.

technological determinism. In addition, because of the relation of technological determinism and technological ethics, I will try to illustrate normative aspects of Ihde's project in Section 4. Then, I will show the intellectual dialogue between Ihde and Heidegger in Section 5. This is necessary because Ihde uses Heidegger's concepts and methods to think about technologies. In summary, Sections 4 and 5 will show some consequences of Ihde's confrontation with technological determinism that will be developed in Section 3. Finally, Section 6 focuses on my critical evaluation of Ihde's dialogue with technological determinism.

Because of this uniqueness of his project, giving a report of it is not easy. However, I intend to show an accurate and comprehensive interpretation of Ihde's project in four following sections. These sections are totally descriptive and I'll only evaluate Ihde's project in Section 6.

2. Ihde's Postphenomenology of Technology

As mentioned, Ihde has a phenomenological approach towards different technologies. In a specific sense, he uses a postphenomenological approach that is a synthesis between phenomenology and pragmatism. So, his postphenomenology has two parts: phenomenology and pragmatism. However, he defends his own account of these two famous philosophical schools (Albrechtslund, 2003).

Phenomenology sees a deep correlation between humans and the world in such a way that neither can be defined without the other. It means that phenomenology shows a correlation between what is experienced (*noema*) and the way *noema* is experienced (*noesis*). For example, Husserl as the predecessor of phenomenology, supposes that there is an interrelated relationship between *noema* (the experienced object) and *noesis* (the way it is experienced) (Ihde, 1979, p. 4). Moreover in Heidegger's philosophy, "being - in - the -world" (Dasein) presupposes a relational connection between Dasein and the world. Following Husserl's phenomenology, Heidegger points out that there is a correlation between the experience of the world and the concept of the world. We cannot imagine the world without the experience of it, and we cannot suppose the experience of the world without the presupposition of it (pp. 4-6). Both Husserl and Heidegger recognize an interconnected relationship between humans and the world in which Descartes' subjectivism totally disappears. This is the meaning of intentional correlation (intentionality) in which the activity of perception is inextricably linked to what is perceived (pp. 5-6).

For Ihde (1986), this subjectivism has three elements: a) The subjectivism refers to Descartes' ego self – closed object, b) it is worldless (except by reference or geometric method), and c) it is a subject without object (p. 188). At one level, we can say that Husserl's and Heidegger's projects are opposed to Descartes' subjectivism, which presupposes a great gap between "subject" and "object" without

seeing the context of them. Because of this objection, Ihde (1998) assumes that phenomenology is an evolutionary philosophical school in modern Western philosophy: a radical approach which rejects fundamental presuppositions of modern philosophy, namely Descartes' dualism of worldless object and subject (Ihde, 1998, p. 75).¹⁰ Postphenomenology is based on this radical opposition to Descartes' subjectivism, even though it has other features, like pragmatist ones, too.

According to Ihde (2003a), postphenomenology has several elements of pragmatism. Postphenomenology is an account of phenomenology that focuses on its specific practical and non-fundamental elements. Postphenomenology highlights the experimental and concrete features of phenomenology and expresses a combination of non-fundamental phenomenology and pragmatism. Like pragmatism, postphenomenology rejects epistemological foundationalism, namely, it does not accept that all knowledge or justified belief ultimately rests on a foundation of noninferential knowledge or justified belief. Postphenomenology is not interested in these epistemological kinds of topics at all (p. 24). Ihde (2003b) supposes that this approach is also viewed in pragmatism. For Ihde, postphenomenology, unlike classical phenomenology, does not cover merely epistemological questions, but rather considers the concrete practices and case studies for knowing our relations with the world (pp. 24-25).¹¹ In this context, technology is not an applied science: science is a theoretical technology. This means that the practice of technology is in the center of postphenomenological explorations. Specifically, postphenomenology of technology takes the practical turn in modern philosophy seriously. These are some features which make a distinction between the theory-oriented,

¹⁰. Ihde (1977) writes, "Phenomenology as a relatively new philosophical method claims to be a *radical* way of thought. Its founder, Edmund Husserl, claimed, "There is only one *radical* self investigation, and it is phenomenological. Martin Heidegger, following Husserl, claimed, "Phenomenology is our way of access to what is to be the theme of ontology, and it is our way of giving it demonstrative precision. *Only as phenomenology is ontology possible*" (p. 17).

¹¹. In addition, see (Selinger, 2006, p. 9).

foundational phenomenology and postphenomenology. Postphenomenology of technics and artifacts begins in this context.

At one level, Ihde's contribution to the literature of phenomenology is his thoughts about the relations between humans and technologies in a world that is fully occupied with different artifacts and technologies. He focuses on claiming that tools and artifacts have always been vital features of human-world relations. Unlike the exceptional cases such as "the skinny dip of childhood", "intimate sexual relations", and "walking barefoot under the moon", our lives are totally interwoven with different technologies. Ihde (1990) writes that our relations with different technologies began when Adam and Eve were cast out of the Garden of Eden (p. 15). In this framework, he introduces three programs: program one (a phenomenology of technics), program two (cultural hermeneutics), and program three (technology and lifeworld). The first program is a micro project, the second is a macro project, and the third is an analysis of our living in a world that has been saturated by image-technologies (pp. 72-191). What are these projects? I will discuss them in the following parts.

2.1. Program One: A Phenomenology of Technics

As I have mentioned, Ihde (1979) thinks that phenomenology is the "science of experience," but this does not mean that phenomenology exists in the paradigm of modern sciences (Ihde, 1977, p. 21).¹² Phenomenology is a radical reaction toward science (p. xvii). According to Ihde (1990), its main focus is the relation of the human experiencer to the field of experience (p. 25). How does this relation happen? Intentionality plays an essential role here. Intentionality is a key term that connects "the way perception constitutes" (*noesis*) and "what is perceived" (*noema*). The way we perceive is totally linked to what is perceived and vice versa. For Ihde, the movement from *noesis* to *noema* constitutes the first

¹². I described this meaning in the introduction of this section of my paper.

program, and the movement from *noema* to the *noesis* constitutes program two. Program one focuses on the experience of the world, and program two emphasizes the concept of the world. Because of these definitions, the first and second programs are defined respectively as sensory and cultural levels (pp. 21-24).

At the micro level (sensory), Ihde highlights four distinct relations: embodiment, hermeneutic, alterity, and background. We drive cars, speak on phones, use glasses, listen to music with speakers, type on keyboards, read thermostats, and so on. Ihde thinks that we can order phenomenological descriptions of all these usual activities with these four types of relations.

Technologies mediate the relation between humans and the world. In this context, the embodiment relation regards technologies as parts of bodily perceptions. Ihde borrows this term from Merleau-Ponty who uses the “embodiment of perception” to describe human–artifact relations. Like Merleau-Ponty for Ihde (1990), this is called the “embodiment relation” because technologies act as the extensions of our perceptual and bodily senses. The main idea is that when artifacts work as the extensions of our perceptions and bodies, they are parts of our bodies (pp. 71-77). Merleau-Ponty (1945/2005) uses the example of a blind man’s cane (which extends his body), while Ihde uses the example of glasses (which extend someone’s sight) (p. 165). We wear glasses and we see the world through them. In this situation, we do not see these glasses when they are working properly, instead we see the world through them. In this sense, glasses become maximally “transparent.” This transparency of glasses is the material condition of embodiment. This point means that they refer to other things--not to themselves. Without this transparency, these kinds of artifacts do not work properly. Ihde (1990) mentions that it is important that embodiment relations are not limited to visual relations: hearing aids have this function for the hearing impaired, and canes have this function for the blind. Heidegger’s prominent example, hammering, may be understood in this context as well. A hammer, when working properly, extends our

bodily perceptions. Therefore, in this context, artifacts are regarded as parts of our bodily perceptions and may extend all human senses (pp. 72-74).¹³

Based on this phenomenology of technology, our bodily perceptions are not only extended but are also changed by technologies. The phenomenological principle mentions that *noema* and *noesis* are interconnected. So a change in the way an object is experienced causes a change in the experienced object and vice versa. Wearing glasses changes the way we see the world (*noesis*), therefore, the perceived object (*noema*) changes (Ihde, 1979, pp. 7-11).¹⁴

The second relation (hermeneutic) is based on reading instrumental artifacts. Unlike the embodiment relations where a combination of “I and technologies” has specific connections with the world, in hermeneutic relations, “I” has a relation to a combination of “technologies and the world”. This means that artifacts in these relations are parts of the world and not parts of “I” (Ihde, 1990, pp. 80-82). The most important difference between the first relations and the second ones is that in hermeneutic relations, technologies are not transparent. Ihde’s purpose in describing these relations as “hermeneutic” is to remind us that instead of extending our bodily perceptions, artifacts can be read to say something about the world. For example, when we read a blueprint that represents a building, the blueprint is a part of a building and illustrates one aspect of it. Therefore, unlike the case of glasses, a blueprint is not transparent, it is what must be read to refer to a building. Ihde (1990) thinks, in embodiment relations, the focus is on the relations between “I” and “artifact”, whereas the main question in hermeneutic relations is what the relation of an “artifact” is to “the world”. This is what Ihde calls the enigma position. In embodiment relations, the enigma position is between “I” and “artifacts”. The question is how they relate to one another; for example, how do eyeglasses change our

¹³. In addition, see (Achterhuis, 2001, pp. 123-126).

¹⁴. I will discuss it more in the second program.

sensory perceptions? Moreover, the enigma in hermeneutic relations is the relation between “technologies” and “the world”. When we read the temperature of our room with a thermostat, the key point (enigma position) is how this thermostat relates to the temperature and how the thermostat works (pp. 85-88).

For Ihde, hermeneutic relations transform our perceptions, but there is one difference between the transformation of perception in embodiment relations and in hermeneutic ones. The transformation in hermeneutic relations is higher with more contrast. To clarify the meaning of transformation and contrast consider that the world that eyeglasses see strongly resembles the world as seen by the eyes, whereas the transformation of perception when reading a spectrogram (as an artifact which transfers light beams to graphs in hermeneutic relations) is totally different; it is a transformation of high contrast. A spectrogram provides information about a star’s chemical composition by visually representing its light beams. It represents a star’s light beams with graphs to provide information about the chemical compositions of that star. The nature and quality of this transformation is different from the transformation of the world through glasses. In the case of glasses, we perceive the world more clearly. In contrast, in hermeneutic relations we experience the world in a totally different way; we see the graphs instead of a star’s chemical composition. Therefore, we have a spectrum in which movement from embodiment relations to hermeneutic ones increases the contrast between the world without artifacts and the world with them.

In the third relation, alterity, technology is regarded as an “other” (or quasi other) world which shows itself in the world.¹⁵ It seems weird that we see artifacts as “others”. Ihde (1990) invites us to leave our “common sense” understanding of artifacts to grasp the meaning of this account of technological

¹⁵. This relation was not mentioned in Ihde (1979) and was explored clearly in Ihde (1990).

relations. In this relation, we are not related to the world through artifacts; we are connected to technologies, so technologies are “others” or “quasi-others” for us that put the world in the background. With regard to the otherness of domestic animals, Ihde regards this relation as a quasi-other one because it is stronger than mere objectness but weaker than the otherness of domestic animals. Here, technologies are like us. The most significant examples of the alterity relation are human–AI relations. In this example, AI is similar to humans (i.e. computers have similar intelligence to human beings). Ihde believes that our relations with robots, toys, and cars are other examples of alterity relations. My favorite example is Apple’s ‘Siri’ which works as an intelligent person: it answers questions, makes recommendations, and allocates requests to Internet services. In an alterity relation, I have a direct relation with artifacts and see them as others. The world is in the background. Unlike embodiment relations (in which artifacts are transparent), and hermeneutic relations (in which artifacts refer to the world with more contrast than embodiment relations), in alterity relations artifacts can be experienced clearly. Artifacts, as independent others, are the foreground and quasi-other and we engage with them momentarily (pp. 96-100). The transparency of this relation is very low because the focal point is an artifact. According to Ihde, there is a ratio between the transparency and objectness of technology. Unlike an embodiment relation, here the objectness is low (technology is quasi-other), so, transparency is low as well (p. 108).

Ihde (1990) supposes that background relations, as the fourth and final relations, illustrate technology as part of the context by insulating humans from their external environments. We see that the role of artifacts in hermeneutic relations and alterity relations is dominant. Technologies are focal points that put the world in the background. However, in background relations, technologies are parts of backgrounds. Phenomenologically, the function of technology in this relation is different from transparency and opacity in the other relations. How do they work? They totally change this

background. By changing the context of our perceptions, technologies shape them. One of Ihde's many examples for this relation is a building's central heating system. These systems cannot be perceived by our perceptions clearly, instead we may perceive a "white noise" (p. 109). Like the case of embodiment relations, technologies in background relations only show themselves when they do not work properly. Only in this situation, do we see them clearly (Ihde, 1979, pp. 13-15). Technologies in these relations "do not call for focal attention" when they do their regular functions. Other examples of background relations are appliances in a kitchen, automated and semi-automatic machines, lighting systems, spacecraft, submarines, shelter technologies, clothing, and all artifacts that create a distance between us and the world (insulate humans from external environments). By mentioning "clothing" and other technologies, Ihde even reminds us that they are not restricted to modern artifacts (Ihde, 1990, p. 109). As we have seen, Ihde refers to automation to elaborate upon the features of artifacts in this relation. Artifacts here shape the background by their automated nature.

These four human-technology relations have a crucial role in Ihde's philosophy of technology. Specifically, he refers to them to develop his projects against two dominant doctrines: technological determinism, and social determinism. They show the diversity of human-technology relations as well as the non-neutral feature of technologies (the way our perceptions are changed by technologies). However, this project is developed at the sensory level and will be completed when he explores human-technology relations at the macro level.

2.2. Program Two: Cultural Hermeneutics

The second program is developed at the cultural level. The main point at the second level is that cultures are connected to technologies in various ways and these connections create a diversity. Phenomenological multistability shows four human-technology relations at the experimental level and

illustrates this diversity at the cultural level. Both say human–world relations have a kind of multistable nature. This means that these relations are based on an ambiguous structure: an essential ambiguity. The practice of a phenomenologist is to describe the relations by focusing on specific variations to grasp the structure of these relations. As Ihde mentions, the professional duty of a phenomenologist is “the exploration of variations in order to discover invariants and structures of this ambiguity” (Ihde, 1990, pp. 108-110). Technologies comprise different meanings by various usages in diverse cultures and contexts. This ambiguity leads to four relations at the micro level and guides us to cultural diversity at the macro-level (pp. 108-110).

Ihde’s aim is to represent a framework which goes beyond technological determinism and social determinism. Impacts of artifacts on culture, and vice versa, have been one of the main concerns of social sciences and humanities. Ihde, as a philosopher of technology, thinks about these as well. In this context, Ihde realizes two philosophical alternatives for his phenomenological projects on culture–technology relations: technological determinism and social determinism. Social determinism (instrumentalism) presumes that technologies are mere neutral tools for human ends. On the other hand, technological determinism (essentialism) sees technology as including an independent essence that changes and shapes the culture (Achterhuis, 2001, p. 133). Ihde rejects both approaches. For him, technology is always related to humans. Technologies are technologies when they do something in relation to humans. Referring to the Lockean terminology, I can say that Ihde believes that there is not any nominal essence for technologies in these relations. When phenomenology starts to explore the structure of technologies, the “essence of technology” will be neglected. In this context, it is a vague concept. Technologies have an essence only when the relations stop. Therefore, essentialism is rejected by this approach. In addition, technologies in human-technology relations are not neutral because they change the structure of these relations. In summary, the instrumental intentionality in human-

technologies relations, at cultural levels, is neither neutral nor has a deterministic structure. So, he claims both social determinism and technological determinism are rejected by postphenomenology at the cultural level.

Even though Ihde (1990) thinks about the rejection of social determinism, his main concern at the cultural level is the rejection of technological determinism. Ihde regards hard technological determinism as “the notion of an overall trajectory to technological history” (p. 124). One aspect of this technological determinism is the dominance of Western-originated science and technology: Is this dominance “fate” for the entire earth? (p. 124). As I mentioned, Ihde’s answer to this question is clear: technologies are ambiguous objects which are embedded in different cultures by the new relations cultures and technologies create. This means that a dual interaction happens between technology and culture. Culture, which consists of values and practices, gives meaning to technology by forming diverse technology-culture relations. On the other hand, the meaning of a culture depends on the function of technology in technology – culture relations. The plurality of technological connections with cultures, in non-neutral indeterministic relations, is totally against hard technological determinism. This means that there is no overall trajectory to technological history.

Many examples have been mentioned by Ihde to illustrate the cultural aspects of technologies in different contexts. One of them is the example of a “clock” and its own historical-cultural functions in various cultures. Ihde (1990) emphasizes the functions of a “clock” in Western culture and Chinese history. By referring to some historical research, he writes that ancient Chinese civilizations “were highly developed in their knowledge of astronomy or ‘heavenly’ phenomena” (p. 129). Ihde thinks these phenomena are totally different from the mechanical movements of the stars introduced by Western cultures. Founded on various functions that “clock” has in Western cultures and ancient Chinese civilizations, we see different human–clock relations in these two cultural domains. In Western

culture, the passage of time is related to the mechanical movement of the clock's hands, while in ancient Chinese civilizations the movement of the hands is related to the movement of the heavens. However, this does not mean that technology is totally passive and neutral in these relations. It has an inclination that affects culture. Based on this inclination, one artifact has two different meanings because of being in two different relations in two cultures (p. 130).

For Ihde, this example shows the wrong presuppositions of hard technological determinism. First of all, technology's function is "in order to" do something in different contexts; technological determinism ignores technological relations with different cultures. It sees technology as an essence separate from the relations. "Is this essence real or nominal from a Lockean perspective?" has not been answered in Ihde's postphenomenology. Ihde could mention that it is a vague question in his postphenomenology.¹⁶ Secondly, technological determinism ignores the active function of culture to

¹⁶. Based on the importance of 'human-technology relations' in Ihde's postphenomenology, I think he could introduce 'relational essence' as a term which is totally compatible with his postphenomenology. As I mentioned, his main concern is the rejection of an 'essence' that is related to the pre-phenomenological subjectivism which was introduced by Descartes and developed by Lock, Hume, Kant and etc. In this context, positively, he has different strategies to neglect 'categorical essence' (in Lockean sense). One way is focusing on the 'variation method'. This concept can clearly show the differences between 'categorical essence' (and real one) and his view. According to Ihde, this method refers to different variations to find out the 'invariant features' of relations. Borrowing from Husserl, he sees the variation method as a major way to find the invariant features of relations which have essential ambiguities (Ihde & Selinger, 2003, P. 125). I suppose there are interesting similarities between this view and the approaches of some relational philosophies of technology and nature. For example, in *Philosophy of Nature*, Lie (2016) suggests a relational philosophy which rejects a kind of passivism in essence-dispositions relations. Lie, who is interested in the relations of nature and artifacts, seeks a new framework for thinking about these relations. In this context, unlike the passivism of Lock and Hume, Lie sees disposition as a kind of activity or capacity to do something. He supposes that properties do not do anything in passivism. This is what he calls 'categorical properties'. Unlike categorical properties, dispositional properties do something (p.88). In this new picture, only one set of properties are not connected to an entity and multiple sets of properties can be connected to an entity (p.92). Therefore, the connections of dispositional properties and an entity are pluralistic in Lie's relational-dispositional philosophy. This is similar to what Ihde writes about the multistable nature of human-technology relations at the perception level. Moreover, like dispositional properties, 'dispositional entity' is highlighted in this context. This is similar to the invariant feature of phenomenon in Ihde's postphenomenology as well. I conclude that both of them introduce a relational philosophy which is revolutionary, practice-oriented, and pluralistic. Related to the topic of this paper, both finally introduce a relational essence. I suppose these similarities can be the subject of a comparative study. This kinds of study may make specific connections between philosophy of technology and environmental philosophy that have not had creative dialogues.

make sense of technology-culture relations. Some ambiguities about this cultural diversity are answered when Ihde speaks about program three.

2.3. Program Three: Technology and Lifeworld

Ihde (1990) sees this program as the combination of programs one and two. On one side, lifeworld is the basic level of primordial experience (program one), and on the other, it is the totality of implicit beliefs by which we interpret our world (program two). In program three, he explores the interaction of these two programs with regard to image-technologies. For Ihde, this program is totally contemporary, because it is related to image-technologies which have only been highlighted very recently. He sometimes defines our new situation as ‘postmodern’ to distinguish it from other times (p. 162). Ihde wrote about image-technologies before the last decade of the 20th century. Therefore, his examples of these types of technologies are television, cinema, computer VDTs and so on. His aim is to find the key features of the “current” time which are situated by image-technologies. This is what he calls the “topography of lifeworld curvatures” (p. 162). Ihde highlights phenomena such as “pluriculturality”, “decisional burden”, “materializing the conceptual”, and “oscillatory phenomena” to show the features of modern technologies. In this context, “pluriculturality” is the essential feature of the modern lifeworld that illustrates the important impacts of image-technologies on our cultures. It is “a now-acquired vector of the contemporary lifeworld” (p. 177). For Ihde, this pluriculturality is a specific type of cultural diversity that is dominant in modernity because of its picture-oriented artifacts and technologies.

The uniqueness of this pluriculturality is grounded in the view that technological relations with cultures necessarily shape our new situation. Ihde (1990) even regards this pluriculturality as a postmodern condition to remark that we are living now in a different era than the modern time because

of image-technologies. For example, a modern viewer may tend to think that the technologies are neutral, namely, they represent clearly and carefully the subjects of images. But, this is not the case. A postmodern viewer realizes this important point. S (he) knows that image-technologies change subjects while representing them. How do the technologies work? Ihde comes back to the relations of *noesis* and *noema*. The technologies change subjects by the way they represent the subject. This is what Ihde calls the transfiguration of images by image-technologies. Based on his postphenomenological approach, Ihde sees image–technologies as excellent examples of technological non-neutrality as well. These technologies change the structure of an object which is taken. Image–technologies do not work as mere neural instruments which exchange an image without serious modifications. One aspect of the postmodern era, for him, is this awareness of living in a transient period which requires new perspectives for analyzing the picture-technologies phenomena. According to Ihde, the new perspectives agree with this non-neutrality of new types of technologies (pp. 161,165).¹⁷

Ihde remarks that his approach rejects both the utopian and dystopian temptations about technologies and artifacts. He has written about his approach to these two perspectives in many writings.¹⁸ However, Ihde (1990) admits that pluriculturality needs a specific analysis because it goes beyond the usual descriptions of technologies. Ihde thinks that image–technologies can lead us to utopian views but emphasizes that technologies have essential ambiguities too and are defined by the culture and context in which they are used. It means that even though a naïve view may accept the utopian view on image-technologies, both utopian and dystopian views are rejected (pp. 163-64).

In summary, regarding my question about Ihde’s position on technological determinism, I tried to write a description of Ihde's postphenomenology in three parts. The first part showed that four human-

¹⁷. For further discussion, see (Ihde, 2002, pp. 3-15).

¹⁸ For example, see Ihde (1979) and Ihde (2010).

technology relations, at the sensory level, have a crucial role in Ihde's philosophy of technology and aim to reject technological determinism and social determinism. At a cultural level, Ihde mentions that technological determinism ignores technological relations with different cultures and forgets the active function of culture in these relations. Finally, at the third level, he elaborates that pluriculturality, as an instance of cultural diversity, is interwoven with image-technologies. He defends his thesis that this plurality is the reason for an indeterministic character of image-technologies. In other words, image-technologies in their relations are non-neutral, but they do not determine culture. He thinks that the pluriculturality can clearly show the indeterministic feature of image-technologies.

Even though his postphenomenology is not restricted to technological determinism, I read Ihde's project as an answer to it. I will discuss Ihde's dialogue with this technological determinism in the next section.

3. Postphenomenology against Technological Determinism

As discussed, the relation between humans and technologies is one of the most central questions in the philosophy of technology. I start with this broad definition of technological determinism that technology shapes the society and culture of humans. As Dusek (2006) writes, technological determinism believes that “technology causes or determines the structure of the rest of society and culture” (p. 84). According to an account of this term, a single, massive trajectory happens by technology. This position is the dominant view among the first generation of philosophers of technology. Ihde (1990) sees Marcuse, Jonas, and Ellul as the representatives of this view (p. 123).¹⁹

One main ambiguity has to do with the meaning and cases of this prominent doctrine in the philosophy of technology. Because of this, I suppose that specific distinctions may help us to have a better reading of the meaning of technological determinism. These distinctions are: a) the distinction between technological determinism and autonomous technology, b) the distinction between technological determinism and social constructivism, and finally c) the distinction between hard technological determinism and soft technological determinism.

The first distinction is between technological determinism and autonomous technology. Technological determinism is concerned with the relations between culture and technology. In contrast, autonomous technology is concerned with non-cultural forces that affect the development of technologies--the development of technology by its own logic. Technologies are either neutral or determine humans. If they are neutral, they cannot be autonomous because they are shaped by something else. If they determine humans, they are either governed by themselves (autonomous) or by other elements and forces. Even though this distinction is a helpful tip in the context of the philosophy

¹⁹. ‘Is there, then, a single, massive trajectory to the rise of high-technological culture and its attainment as a world culture? If so, the Marcuses, Jonases, and Elluls would turn out to be the prophet for our times.’

of technology, I suppose it is not highlighted in the relevant literature. So, many confusions between technological determinism and autonomous technology can be seen there.²⁰ This distinction is not clear in Ihde's writings either. My reading is that Ihde regards autonomous technology's view as an extreme case of hard technological determinism.²¹

The other distinction is the division between social constructivism and technological determinism. Social constructivism includes many different approaches and viewpoints, so I only focus on Bijker and his collaborators' book: *The Social Construction of Technological Systems* (2012). In this book, they remark that the developmental process of technologies is based on a multidimensional model which is the main feature of social constructivism of technology. Their famous example is the development of different types of bicycles by different social mechanisms (pp. 22-28). Unlike technological determinism which supposes the determination of culture and society by technologies, social constructivism of technology refers to the determination of technologies by various societies. In other words, technologies, in social constructivism of technology, are presumed to be neutral objects which are shaped by social mechanisms and preferences. This is what Ihde totally abandons. However, I suppose that because of the different accounts of social constructivism of technology, he usually uses the term social determinism of technology.

The third key distinction is the distinction between hard technological determinism and soft technological determinism. As I have mentioned, according to the common-sense account of

²⁰. For example, we see in *Encyclopedia of Science, Technology and Ethics* (Mitcham, 2005, p. 511), that hard technological determinism is considered to be a kind of autonomous technological doctrine. Ihde's position, in *Technology and the Lifeworld*, is similar to this view. He writes, "At an even greater extreme of the neutrality/non-neutrality debate, there are those who hold not only that technologies are not neutral but that once created and put in place, technology (often with a capital: Technology) takes on a life of its own and becomes *autonomous*" (Ihde, 1990, p.6). Dusek remarks on a similar point too. He regards autonomous technology's doctrine as an approach which presupposes technological determinism. This means that it is a radical version of technological determinism (Dusek, 2006, p. 84).

²¹. I will discuss it in 6.2.2.

technological determinism, technologies shape culture. However, the question is how technologies change them. What is the quality and power of the effects? Hard technological determinism believes that technologies necessitate the directions of cultures. This means whether we are utopian or dystopian, technologies totally change us. Our future conditions are connected to our current conditions based on some rules which are related to technological changes.²² The use of technology determines an “inquiry that only certain directions are possible rather than others” (Ihde, 1979, p. 42). On the other hand, many approaches in the philosophy of technology discuss the different kinds of soft technological determinism which see technology as an important force to shape and form culture and society beside other social, economic, and/or cultural causes. In addition, some schools see technological determinism as a rule for showing that technological developments are not arbitrary (Smith and Marx, 1994, pp. 101-2). Namely, technologies follow some specific rules. As it might be focused, these accounts of technological determinism (soft version) sometimes seem vaguely universal ones that cover many different schools. Because of this ambiguity, I believe we must focus on various topics to develop Ihde’s own interpretations of this term. This is what I’ll do here.

3.1. Ihde’s Challenges with Technological Determinism and Social Determinism

Ihde thinks that his postphenomenology can be seen as an answer to the question of human-technology relations. This answer is against technological determinism’s and social determinism’s responses to this question.²³ By regarding technological determinism from a phenomenological viewpoint, an

²². Some scholars do not agree with this account of technological determinism. For example, see (Ellul, 1964, p. xxxiii) and (Introna, 2005).

²³. We can see the outline of his project here. He intends to answer the questions of social determinism and technological determinism: “By developing a range of the types of experience of technological artifacts, I also hope to show how pervasive our experiences of technologies are and thus show its necessary impact upon the way we must conceive of the world and ultimately of ourselves...by displaying the variety and expanse of human – machine relations as they move toward a presumptive ‘totality’ the weaker thesis shows a strong form. Human – machine relations are existential relations in which our fate and destiny are implicated, but which are subject to the very ambiguity found in all existential relations. At the same time, this existential ambiguity has its roots in the notion of the lifeworld in which ...prevents any total closure into what might be called technocracy as an absolute mode of existence” (Ihde, 1979, p.4).

account of technological determinism reflects two independent domains. “Technology” and “humans” are related in such a way that “technology” shapes the culture of “humans”. In the broadest sense, it presupposes a technological domain and a human domain in such a way that the technological domain determines the human domain. Even though the position of social determinism is totally different from technological determinism, the same issue occurs. This means that the supposition of social determinism is the two distinct domains: technology and society. Therefore, on the first level, Ihde (1979) sees these approaches as vague ideas because of a wrong presupposition. In other words, specific readings of technological determinism and social determinism are meaningless before we can ask about their justifications. Why? Because they suppose a strong distinction between humans and technologies. Coming back to Heidegger’s terms, technologies are ready to our hands (*Zuhandenheit*) and not present at our hands (*Vorhandenheit*) (Ihde, 1979, p.40). Technologies are not things in themselves; they are “in order to” do something. They are for purposes in holistic contexts that follow human–technology–world relations. In this context, the presupposition of the independence of technology and society is totally wrong.

On the second level, we can think about technological intentionality in a human–artifact relation. While working, technologies are “ready to our hands” and get their meanings through their relations with us. However, the question is how we can speak about a deterministic feature in human–technology relations. Ihde’s answer to these questions is no. I think, for Ihde, the nature of all types of intentionality, including instrumental intentionality, is against technological determinism.

When Ihde (1990) talks about technological determinism, he is referring to the hard account of it. He usually sees a necessary element in this doctrine in such a way that we cannot escape the determined and fixed results of different technologies. We have various possibilities, but the development of a technology is “a whole nest of possibilities that determine future directions for the socius” (Ihde, 1990,

pp. 5-6). Ihde thinks that some philosophers and scholars such as Ellul, Marcuse, Mumford, and White believe in various versions of hard technological determinism (pp. 5-6). Specifically, in many texts and contexts, he highlights Lynn White's and James Burke's analyses of Middle Ages technologies to show how technologies have changed throughout history. White, in his famous book *Medieval Technology and Social Change* (1962), illustrates the way technologies shaped the social, political, and economic systems of their times. The changes started with the invention of the stirrup.²⁴ With this invention, a new method of horseback riding became dominant in the Middle Ages. Warriors did not have to dive down in a stabbing motion to use their lances at foot soldiers. They could fight with greater speed and use the power of horses to spear the enemy. In this context, the change of lances allowed the warriors to use them more than one time. Because of the change, they could withdraw after attacking the enemy. After that, the stirrups, larger saddles, armor, and longbows were invented for adapting to this new situation. New elite cavalries (knights) were one result of this new lifeworld (pp. 1-2). Ihde's reading of White's book is that White sees technologies as the foreground elements of these changes. Technologies are not only central because of their actions and effects but because, for developing, they do not need to have specific social - political condition. This is an account of hard determinism that regards technologies as autonomous forces (Ihde, 1990, pp. 4-6).

Ihde (1990) rejects this reading of technology, but it does not mean that he accepts the social determinism of technology as an alternative. For him, social determinism of technology is a doctrine that regards technological development as a result of power elites' decisions and social and political conflicts. He is interested in McCormick's example of the reaper to clarify the central thesis of social determinism. The reaper was introduced to replace hand scythes. It was a 19th century's complex artifact

²⁴. Burke reworked this topic in (*Connections*, 1978, pp. 51-60).

made by skilled craftsmen. Factory management recognized the growing wage cost of skilled artisans. So, its response was to break down the complex technology to simple processes in such a way that unskilled workers could do them. It was a decision against the development of nascent union. This de-skilled process was more expensive and not efficient at all, but the management aimed to eliminate the union. As we see in this context, technology is in the background; it is a neutral element, and the conflict of management and workers plays a major role in its development (p. 4). Ihde does not totally reject social determinism and technological determinism.²⁵ However, he thinks that they are incomplete views on technology. By highlighting “the latent *telos* of technology” (inclination of technology), he intends to illustrate his own position on this important question in the philosophy of technology.

3.2. The Latent *Telos* of Technology

Many approaches against technological determinism have been established in the literature of the history and philosophy of technology. For example, one approach plans to defend a moderate (soft) account of technology to challenge hard technological determinism. We can see this viewpoint in Heilbroner’s “Technological Determinism Revised” in which he tries to defend a sensible meaning of technological determinism. According to this assumption, technology does not determine cultures. Heilbroner believes the question of technological determinism must be changed, meaning that we can keep the term but change its question. “Does a machine make history?” is not a justifiable question in modern times, so we must ask “how do machines make history?” (Smith & Marx, 1994, p. 69). He sees an important premise in the idea of determinism, namely, this idea that living behavior is not random and can be analyzed under “imprecise” regulations. Heilbroner thinks that these regulations are “imprecise,” because human behaviors are affected by society and have an indeterminacy. By introducing different degrees of determinism, he mentions that we can put technology in the

²⁵ . For example, we can see his sympathy with White’s account of technological determinism in (Ihde, 2010, pp. 63-65).

background of our framework in which the foreground is the evolving social order. In this context, the idea of technological determinism does not ignore the different possibilities and volitional elements of social order. So, a kind of soft technological determinism can be justified without rejecting various technological and non-technological possibilities in society. This account of technological determinism accepts that, at least in modern societies, behaviour can be regulated, even though these regulations are imprecise (p. 74).

On the other side, Thomas P. Hughes in “Technological Momentum” intends to go beyond social and technological determinism by speaking about technological momentum as a flexible mode between these two extremes. His presupposition is that technological systems are more complex than can be explained by social and technological determinism (Smith & Marx, 1994, p. 69). In this context, he speaks about momentum. Momentum is a quasi-deterministic power that drives itself and controls institutions to follow its requirements. For him, the relation of society and technology is not symmetrical over time; time plays a key role here. So, the relation of society and technology is time dependent (pp. 104-105). When society sees an emerging technology, it can control that technology. But when technological systems become more complex by gathering momentum, the systems are less shaped “by” their society: They are more a “shaper of” their society (p. 106).²⁶

Ihde picks up the second approach (Hughes’s way) by presenting “latent *telos*” (inclinations) of technology.²⁷ Unlike social determinism, Ihde (1979) does not believe that technologies are neutral and shaped by social conflicts and the preferences of the elite; they change our perceptions and cultures

²⁶. Winner (1977) prefers Hughes’s position. By referring to Heibroner’s view on technological determinism, he concludes: “Perhaps the appropriate label for this state of affairs is not determinism at all but, instead, technological drift (p. 88). He suggests other concepts such as momentum, energy, speed, force and energy for taking into account a process of technological change (p.48).

²⁷. In *Technics and Praxis* (1979) he usually uses “latent *telos*”, but in *Technology and the Lifeworld* (1990) he refers to the term of “inclination”.

at micro and macro levels. As I showed in Section 2, human-technology relations with the world are completely different from human relations with the world without technology. Technologies change the experienced world by the way we experience the world and vice versa. Therefore, technological intentionalities are entirely different from other kinds of intentionalities. Unlike technological determinism, this does not mean that technologies determine us. If they change our perceptions at experience and culture levels, this means that they have a telic aim (inclination) which changes our relations but which unseals new opportunities and options as well (pp. 40-45).

Latent telic inclinations limit our options and directions but do not determine them. One example of this latent telic inclination shows itself when we use a typewriter. Like a pen, a typewriter involves an embodiment relation, namely, it extends our bodily perception. A typewriter may increase the speed of writing, so we can rapidly transfer ideas on paper. It is possible that the relative speed of writing even changes our style of writing. Ihde supposes that writing with a pen gives more time to a writer to think more. But this does not mean that typing determines (necessitates) a specific style of writing: some latent *telos* is imposed, but otherwise, many new opportunities are introduced. Using typewriting only highlights an instrumental intentionality with new options and possibilities. Therefore, latent *telos* focuses on both non-neutral and indeterministic structures of instrumental intentionality (Ihde, pp. 42-6).

One feature of technological intentionality is its magnification/reduction structure (Ihde, 1990, pp. 78-9). For example, in embodiment relations we see the moon with a telescope, it is an easy way to see different areas of the moon. Meanwhile, it is fully different from walking on the moon. Seeing the moon with a telescope is an easy way of seeing it, but something is missing: touching the moon. The other example is an online conversation. When we chat with our friends online, we may realize that it is fully different from face-to-face relations. The online relation is more applicable, but in one aspect,

it is far away from an authentic dialogue.²⁸ However, we should not expect that watching the moon with a telescope or an online technology determines and necessitates our inquiry in a certain direction. They contain latent *telos*, namely, they are not neutral, but open new possibilities for us as well. As I have written, Ihde's effort is to show the point that the application of technology does not impose a singular direction. By using technology, various options and directions are open to us even though this technology imposes some inclinations. Ihde's concept of technological determinism here is the reduction of all directions and options to one singular way and trend. According to this doctrine, technology necessitates one singular way. Specifically, it will be discussed in the next part.

3.3. Multiculturalism and Pluriculturality

As I wrote in Section 2, I think cultural diversity and pluriculturality can illustrate Ihde's strategy to defeat technological determinism at experimental and cultural levels. In part 2.2. and 2.3, I illustrated basic features of these two terms. Here, I focus on the indeterministic elements of them.

Positively, Ihde supposes that technologies contain an ambiguous nature. Like a text, they have diverse meanings in different contexts. At the micro level, they follow the multistable character and create four specific relations based on the multistability of human–technology relations. Cultural diversity is the appearance of this multistability at the macro level. Therefore, we can see a rule regarding the relations of technology and humans, namely, the multistability of these relations at micro and macro levels. In other words, the technological intentionalities have a plural character. Negatively, these human–technology relations cannot be reduced in a unique direction rather than in other

²⁸. This is my own example based on Ihde's theory.

directions. In other words, based on the postphenomenological approach, the intentionality of these relations have a plural structure (Ihde, 1991b, p. 65).²⁹

At the macro level, for example, Ihde (1986) intends to highlight the dual interactions between lifeworld and technology. Imagine a technology is imported to a culture. On the one side, lifeworld makes meaning for the technology which has lost its last context. On the other side, technology creates instrumental intentionalities and changes some aspects of the lifeworld. Therefore, not only does a lifeworld with technologies differ from the lifeworld without technologies, but we also see different lifeworlds which are based on different technological intentionalities (p. 124). This unique situation is viewed clearly when image-technologies are situated in lifeworlds. According to Ihde, pluriculturality is created and acts as a specific type of cultural diversity. In this context, a technological lifeworld has a kind of totalization because of the latent relics of technology, but it does not include a deterministic nature. This totalization creates new room for new directions, options, and possibilities.

One aspect of culture–technology relations are the ways technologies transfer from one culture to another. Specifically, the ways technologies transfer from the mainly Northern Hemisphere high-technology nations and the ways the developing nations accept them. For Ihde, this process is ambiguous because of the function of a culture which makes a meaning for technology, and the function of a technology which changes the structure of that culture. The key point is that technology is transferred, but the lifeworld of it cannot be transferred. In this context, technological transfer is the interaction of two lifeworlds that have two different instrumental intentionalities. Technology in a culture has a kind of *telos*, and this *telos* leads to different possibilities. When this technology transfers

²⁹. In addition, see (Ihde, 1990, p. 27).

to the other culture, the lifeworld of the second culture changes these limitations and possibilities (Ihde, 1990, pp. 131-32).³⁰

Ihde's concern is not whether this transfer is good or bad. His opinion is that the transfer of technology from one lifeworld to another one is more complex than what specific intellectual schools, such as neocolonialism, suppose. If technological determinism and social determinism of technology were right, the transfer of technology could be done very easily. Based on a hard version of technological determinism, technology straightforwardly shapes a culture in which technology will be imported. According to social determinism, technology is neutral and is easily shaped by the social relations of a culture. However, what we see is that the transfer of technology is a big issue for developing countries. This means that a new relation is happening during this transformation. Unlike that inaccurate picture, this transfer is an obstacle, a problem which calls for new relations with a new culture. This phenomenon can show that something is wrong in technological determinism and social determinism (Ihde, 1990, pp. 125-127).

For Ihde (1990), the conditions of education in developing countries lead to a gap between developing and developed countries on infrastructures of science and technology. In this context, it can be seen that without the transfer of some fundamental basis of modern science and technology, the transfer of technology is a big problem. It is the "massive failure" to transfer the infrastructure of culture (p., 136). For Ihde, this phenomenon might be a sign of the theoretical problem of hard technological determinism. If this was right, the infrastructure of culture could be transferred very easily.

Different reactions may be highlighted when we focus on the ways developing countries accept new sciences and technologies. For example, Ihde (1990) refers to India, as a successful example of a

³⁰. In addition, see (Ihde, 1991b, p. 6).

colonized country, which is known for creating its own science-technology infrastructure. Ihde presumes that Indian graduate students play a key role at US universities and regards this as an example of the failure of technological transfer to developing countries. The transfer has been reversed in this case. In addition, the conditions of Islamic countries show this gap more clearly. They totally realize the conflicts between their culture and Western culture. The emergence of Islamic fundamentalism can be understood in this context. He borrows the point from Heidegger that the way of seeing (the way of having nature revealed) in culture is totally unique, and this is what constitutes the worldview of technological culture (pp. 131-133). In summary, Ihde supposes that cultural diversity and its consequence (pluriculturalism) are fair reasons against hard technological determinism. His writings are full of case studies to reject this. I'll try to highlight more case studies in the following part.

3.4. Case Studies and Technological Determinism

Thomas J. Misa believes that our position on the relations between technological changes and culture is totally shaped by the intellectual level we choose. If a macro level is chosen, the result is technological determinism, and if a micro level is chosen, we can witness dual relations between technology and culture (Smith & Marx, 1994, p. 15). This fact is usually approved by referring back to the literature of the philosophy of technology. The first generation of philosophers of technology who frequently had essentialist views (general ones) on technology usually lead to technological determinism. On the other hand, the second generation usually emphasizes technology–human case studies. As Scranton mentions, technological determinism is a production of holistic readings of human–technology relations. These interpretations will be ineffective when we explore the artifacts in their contexts and cultures (p. 43).

Ihde, as an influential figure of the second generation of this philosophy, talks over various technological case studies as well (Achterhuis, 2001, p. 20). For example, when he develops four

human–technology relations, we can recognize many stories about concrete technological cases: From human– computer relations to the functions of clocks in ancient and modern cultures, from telescopes and glasses to thermostats and musical instruments, from robots and image technologies to automations and ritual items, from food industries in different cultures to agricultural machines and so on.³¹ In all these case studies, one of Ihde’s aims is to show that the technological intentionality has a kind of *telos* but this *telos* does not determine the structure of the intentionality.³²

Because I highlighted Ihde's case studies in the other parts of this paper, I only write about two of his many case studies here--clothing and photography. Technological texturing is an example of background relations. For example, clothing insulates our bodies from external phenomena. Clothing should not be put in an embodiment relation. The transparency of the embodiment relations may not be seen here, because clothing plays the role of opacity without restricting movement. When clothing is in the background, it means that clothing is not usually in the focal attention but “conditioning the context in which the inhabitant lives” (Ihde, 1990, pp. 110-11). As I mentioned in Section 2, like other types of human–technology relations, when the background relation fails, the background will become foreground. Despite the various kinds of background relations, its intentionality imposes a *telos* on this relation. This is the meaning of non-neutral for the background relation: clothing here inclines, not determines, human experience. Its amplification/reduction structure changes indirectly the gestalt of human experience by conditioning the context of our lives. In other words, the function of clothing is a kind of atmospheric feature: it is a technosphere in which we do a good deal of our living (Ihde, 1979, p. 14).

³¹. In Section 2, I showed the references of these case studies.

³². I discussed it in 3.2.

The other examples are photography and TV which are related to the image-technologies category. Ihde's emphasis is the photos of *National Geographic* magazine. This magazine changed the space of living rooms by showing a full variety of world cultures that were new to families. According to Ihde (1990), viewing these photos was an inter-relation, namely they showed the features of other cultures and were perceived based on the cultures of the viewers. It might be assumed that the photos are neutral. This means that they transfer the objects as they are. However, this is not the case. The representation of photos depends on the features of cameras: the way these photos represent objects. So, there is a gap between an object and the photo of it. This is the meaning of the non-neutral character of a photo. Because huge quantities of photos are put into motion on TV, it expresses clearly the non-neutral character of image-technologies. For example, imagine a viewer watching a TV; the viewer is watching specific photos in motion, but what s (he) understands can be something else. Viewed objects differ from objects because of the feature of cameras. Therefore, here cameras are not neutral either. However, this does not mean that photos impose a specific direction for us (Ihde, 1990, p. 166). Specific inclinations are applied and other possibilities are introduced. Technologies are ambiguous and receive their meaning based on their context. I will elaborate upon this ambiguity in the following sections.

3.5. Postmodern Condition against Technological Determinism

Andrew Feenberg (2000) thinks that after World War II the humanities and social sciences developed a deep relation between modernism, essentialism, and technological determinism. Firstly, they highlighted an essence for modernity. Secondly, they intended to see technology as the essence of modernity. Specifically, Feenberg remarks that Ellul, Heidegger, and the Frankfurt school regard modernity as a unique form of technical actions and thoughts (pp. 294-295). The relation of technology and modernism is one of Ihde's main concerns as well. I think his concern can be justified by the

relations of this topic with technological determinism. Because of these relations, he sometimes regards his project as a project developed in a postmodern era.

According to Ihde (1990), the postmodern era is one of transition which rejects all deterministic projects about technologies and artifacts (p. 162). ‘Postmodern’ is a term that announces the end of the modern, and the beginning of an enigmatic era. However, he highlights two characteristics of the postmodern era. First of all, it is related to image-technologies. So, what he writes about pluriculturality can be considered as a characteristic of the postmodern era.³³ Secondly, it calls for the priority of praxis and perception over theory and *a priori* intuition. What Ihde sees as the postphenomenological way can be regarded as the features of the postmodern era. Therefore, the postmodern era is against Descartes’ subjectivism and fundamental epistemology. In addition, it sees an ambiguity in all terms and concepts including technology and focuses on the relational way of thinking about them. In this context, his project can be assumed as a postphenomenological position against the technocracy as an absolute mode of being that is based on the modern era (Ihde, 1979, p. 4).³⁴

He thinks that the ambiguity of technology in the postmodern context rejects any essentialist approach toward the relations of technology and modernism. Postmodern is the other name for the idea of the multiplicity of perceptions at micro and macro levels. Ihde (1990) writes, “the genius of the postmodern, however, is not to eliminate any of the previous forms...Each variant becomes *a*, not *the*, choice of expression” (p. 187). This means that he is easy with the modern era. He rejects an account of modernism that does not accept the multistabile structure of the word at different levels.

³³. I described this concept in 2.3.

³⁴. This subject is the main theme of this book: *Postphenomenology: Essays in the Postmodern Context Paperback* (Ihde, 1995).

Ihde's emphasis on "postmodern" can be regarded as the other interpretation of postphenomenology. As I showed, there is a deep connection between the terms postmodern and postphenomenology. However, it is another sign of an indeterministic feature of human-technology relations in Ihde's project. With regard to Feenberg's insight, Ihde's strategy is to represent an unessentialistic project which rejects all deterministic accounts of technology. This is a better title for his overall project. In this context, the indeterministic elements are not the intellectual consequences of his project, the elements are the subjects of his postphenomenological project. This is what I mentioned in Section 1 and is the main theme of my paper.

3.6. "Controlling" Technology

The idea of ambiguity of technology, at perceptual and cultural levels, rejects the concept of 'controlling technology' that is a key topic in the philosophy of technology. The question is whether technology can be controlled or not. Ihde presumes that this is an outdated question inside the metaphysics of determinism. Ihde (1990), who thinks of technology as an ambiguous term which has different meanings in different contexts, sees no difference between the control of technology and the control of culture. In this context, if cultures can be controlled, technologies can be controlled as well. The ambiguity of 'technology' and the dual relations of cultures and technologies are his reasons to defeat technological determinism and emphasize the diverse sources of controlling technology (pp. 139-140). The combination of these views provides a response to the question of control of technology. On the one side, technology does not determine a specific perception and lifestyle. On the other side, there is a dual relation between technology and culture. These two suppositions are in contrast to autonomous technology.

The concept of autonomous technology reminds us of Langdon Winner's project in *Autonomous Technology* (1977). By borrowing some deterministic elements of Ellul's philosophy of technology,

Winner explores the relations of the rise of modern technology and the new types of political life--namely technological politics. The main point of this book as well as his other work, *The Whale and the Reactor* (1986), is that technology shapes the modern political order regardless of the context it is located in (Mitcham, 1994, p. 187). As I mentioned, this is not Ihde's worry. For Ihde (1990), the topic of controlling technology: a) can be changed to the interaction of culture and technology, and b) is related to specific middle-level topics like the type and degree of technological risk assessment, technological agencies assessment, and so on. Ihde concludes that these political topics must be seen as middle-level ones that "directly do not get at the deeper and broader cultural values that situate the entire field on the debates" (p. 142).

Ihde supposes that his postphenomenology is able to reject both autonomous technology's view and technological determinism. However, the question is that, if his postphenomenology rejects both, what are its normative features? This is what I will discuss in the following section.

4. Postphenomenology and Normative Aspects of Artifacts

Because phenomenology is a descriptive knowledge of human experiences from a first person perspective, it usually asks about the relationship of phenomenology (postphenomenology) and ethics.³⁵ This question seems more vital if we know that normative questions take unique positions in the philosophy of technology. Yet based on the descriptive nature of his approach, it is a common critique that Ihde's postphenomenology has not emphasized normative questions (Selinger, 2006, p. 89). Because of this background, even though it is not easy to have a comprehensive reading of normative features of Ihde's philosophy, I focus on five distinctions which may lead us to a fair understanding of his normative position on artifacts.

The division between the "moral sensibility on technology" and the "ethics of technology" is an efficient distinction in Ihde's philosophy. Ihde (1991b) is normally concerned about the positive and negative consequences of a culture of technics: from the technological wars to environmental pollution, from health care technological achievements to entertainment technologies, and so on (pp. xii-xiii). According to Ihde (1990), however, two main technologically moral concerns are environmental destruction and antimulticulturalism's movements. We live in a world where having a fresh and clean environment is a dream. On the other side, technological multiculturalism may be threatened by the ideological concepts of science and technology (pp. 137, 138, 208, 209). Although these moral concerns are viewed in his writings, the way he theorizes them is a major question. In this context, we can ask what his ethics of technology is. To understand this question it is necessary to consider the dichotomy of "is/ought".

³⁵. See Selinger, Thompson, and Verbeek's papers in Selinger (2006).

The distinction between “is” and “ought” is a polemical debate in ethics in general and in the ethics of artifacts in particular. However, Ihde sees this distinction as a pseudo problem happening as a result of Descartes’ subjectivism. Like the dualisms of humans/artifacts, humans/the world, subject/object, and science/hermeneutics, this one is based on this subjectivism too. So, according to a postphenomenological perspective these gaps are omitted because they are founded on the wrong basis (Selinger, 2006, p. 279). In this context, the ethics of technology is totally context-oriented ethics: This ethics depends on the context of a lifeworld. Because we have different lifeworlds, and ethics must be conditioned by lifeworld, then we have different kinds of ethics of technology. If technology has an ambiguous character and various meanings in different contexts, different norms and values are recognizable (p. 277). Based on this approach, Ihde can only accept one normative virtue, namely the virtue of plurality that is totally related to his postphenomenological way which accepts the multiplicity and variety of technological experience. The gap between “is” and “ought” is blurred by this multiplicity rule. It says, “what a phenomenon is in a specific context,” and then “what we should do in that lifeworld.” For him, the ethics of technology goes beyond the distinction of “is” and “ought”, takes seriously the diversity of moral codes and rules in different cultures, and finally judges based on thinking about specific cases and situations (p. 278).

The distinction between moral relationism and moral relativism is helpful to understanding Ihde’s approach as well. The question is “whether he leads to a kind of moral relativism or not, if the ethics of technology depend on a lifeworld and are conditioned by it.” Because of his emphasis on lifeworld (context) as the source of moral values, can he introduce some independent values or does he fall in a context dependency view in ethics?³⁶ He denies that he is a relativist and claims that his approach is a

³⁶. This account of relativism is based on this reference (Baghrarian, 2019)

kind of relationism: “I am a relativistic thinker, not a relativist” (Albrechtslund, 2003).³⁷ What is the difference between them? His answer is that he thinks about things in inter-relational terms. This means that he is a phenomenologist or a postphenomenologist and thinks relationally about human-technology relations. This is what I discuss in Section 2. Even though I doubt he could escape relativism in general and moral relativism in particular by making a distinction between these two terms, his remarks again show his intellectual priority to escape from detailed theoretical debates such as the different accounts of moral relativism and moral relationism. Ihde might say these debates are related to the theoretical paradigm or Descartes' subjectivism, so they're inaccurate. His normative relationism and his practical turn will be evaluated, respectively in 6.2.4 and 6.2.5.

What Ihde says about the dependency of ethics on the lifeworld highlights the division between moral universalism and moral particularism. Though there are many different accounts of these two terms, we may say that, unlike moral universalism, moral particularism focuses on particular conditions and situations to evaluate our behaviours. This means moral thought should not be grounded on the application of moral principles to cases.³⁸ Ihde (1990) defends an account of technological moral particularism which emphasizes the context and situation of human–artifact relations to make decisions about what we should do and how we solve our normative issues. In this context, the ethics of technology must be founded on insightful research on specific cases. This is the right way to have a fair ethics of technology. Finally, we must remember that all research endeavours are temporally and context dependent. So, they may be context-oriented and can change over time. Therefore, they always need revisited contemplations (pp. 180-184, 200).

³⁷ . In addition, see (Selinger, 2006, p. 116).

³⁸ . I used Dancy's account here. See (Dancy, 2017).

The last distinction, the most important one for our discussion, is the division between technological utopism and dystopism. This dichotomy can be seen in his different writings.³⁹ In addition, this has a huge history. Robert Shelton thinks utopism and dystopism psychologically are justified by two long term human concerns about their futures: hope and fear (Mitcham, 2005, p. 2010). Specifically, at the beginning of the modern era, a new approach toward utopian culture had been developed by Francis Bacon in *New Organon* (2000) in which he was so optimistic about the application of science and technology to reject different traditional superstitions and idols and create an ideal society (Klein, 2003). Thinking about Bacon's project, Ihde (1990) accepts that modern time began with the idea that science and technology may create an ideal culture for humans (a utopian view). However, two world wars in the twentieth century refuted the idea and highlighted two alternative views (p. 6).⁴⁰ The first was a doubt about the idea: a kind of agnostic position on this subject. The second was that we are going toward a dystopian end: we are going to hell (Ihde, 1986, pp. 79-81).

Ihde (1990) thinks that the modern versions of both technological utopism and dystopism rely on a deterministic approach toward modernism and technology as the main forces and causes of it. In this context, the conditions of justification of these two views are two presuppositions. Firstly, we must accept a linear concept of history: History starts from a beginning point and goes to the end point. Secondly, the feature of this movement is based on technological laws which are the essence of modernism (pp. 6-7). In other words, both utopian and dystopian views on technology regard technology as a phenomenon which has an essence, and its essence is clear: good (utopian view) or evil (dystopian view). Unlike Ihde's approach, these views do not assume that technology has an ambiguous

³⁹. For example, (Ihde, 2010, pp. 7-8) and (Ihde, 1990, pp. 162-164).

⁴⁰. He writes, "dystopian interpretations of technology were popular in the last couple of decades, but utopian ones so in the previous century".

character and feature (Ihde, 1986, pp. 79-81).⁴¹ We can realize that Ihde's reasons to reject utopian and dystopian views parallel his reasons to reject technological determinism. First of all, Ihde (1991b) thinks that technologies have ambiguous features and must be evaluated in their contexts. We can evaluate whether they have positive or negative consequences after the establishment of technologies in their contexts. Based on this presupposition, plurality is the main feature of human–artifact relations at micro and macro levels. This diversity cannot be reduced to utopian or dystopian views. In summary, technology does not have an essence from which we can judge whether it is good or bad. We only have different human–technology relations in different contexts. In other words, we do not have “Technology”. We have technologies in different contexts with plural consequences. Moreover, these technologies have an increase/decrease character, they work based on a trade off rule: give something and take something back (p. 119). All these presuppositions are against utopian and dystopian views of technology.

Heidegger is Ihde's main philosophical figure, so we can ask about their intellectual relations on these topics. Heidegger disagrees with the presuppositions of dystopian or utopian views, but he accepts a kind of romanticism towards technologies. Ihde (2010) believes that Heidegger could not realize four human–artifact relations and reduced them to embodiment relations. Because of this reduction, Heidegger sees nostalgic elements in our relations with technology. This led to his technological romanticism (p. 79).

Because of the importance of Ihde's dialogue with Heidegger, this dialogue will be explored in the following section.

⁴¹. In addition, see (Ihde, 1991, p. xiii).

5. Ihde and Heidegger

My aim here is to show the features of Ihde's dialogue with Heidegger on technological determinism and refer to the dystopian view on technology as a related topic to technological determinism in this context. Heidegger is the main philosophical figure in Ihde's phenomenology of technics. Yet, Ihde (1991b) is not a mere commentator of Heidegger. He refers to Heidegger to articulate and answer his own questions in the philosophy of technology. Ihde thinks, unlike the common sense perception, we do not have a fair knowledge of the features and structures of technologies just now (p., xiii). Therefore, he comes back to *Being and Time* (the first philosophy of Heidegger) and *The Question Concerning Technology* (as an example of his second philosophy) to deliberate thoughtfully about the human–technology relations.⁴²

Based on his main question about the relations of humans and artifacts, Ihde has a specific intellectual relationship with Heidegger's philosophy. A usual commentary effort of this portion of Heidegger's philosophies might be defending some accounts of “tools analysis” (Heidegger, 1927/2010) and “the question concerning technology” (Heidegger, 1977), but “this theoretically oriented game of interpretations” is not Ihde's main concern. Even though he has some interesting interpretations of Heidegger's philosophies, these interpretations are pursued to develop his own project, namely, the postphenomenology of technics. They are defined on a practice-oriented base. For example, in his discussion about the historical–ontological priority of technology over science, he focuses on the continuity between two philosophies of Heidegger and tries to read this continuity from the second

⁴². Many debates have been developed to elaborate the differences of the first and second Heidegger. For example, see Pattison (2000) who emphasizes some interesting points. He says that according to different readings, the second philosophy is a passive one which is language–oriented, history–oriented, and culture–oriented (p. 5).

philosophy to the first one. Like Heidegger, Ihde intends to see technology as a philosophical question in its relation with humans in the lifeworld. Finally, he develops his own interpretations of Heidegger's text. Although the readings could be regarded as an interesting interpretation in the literature of Heidegger, this is not what Ihde intends to do.⁴³

Does Heidegger admire a hard account of technological determinism? It is a difficult question. My emphasis is that Ihde's reading of Heidegger's philosophies suggests that Heidegger does not defend a hard version of technological determinism. It is a plausible understanding that neither Heidegger nor Ihde agrees with technology as a neutral tool. The question is, if technologies are not neutral, whether they determine (necessitate) us or not. Ihde (1979) interprets the deterministic aspect of *The Question Concerning Technology* in a specific way that goes beyond hard technological determinism. Heidegger writes, "We shall call the standing that gathers, that first starts man upon a way of revealing, *destining*." Ihde reads this *destining* as a *telos*, a direction, and a framework that provides a "set of conditions as an inclination." It is not a fate that compels at all (p. 113). Ihde intends to say that his position is similar to Heidegger's view.

For Ihde (1979), this is the characteristic feature of phenomenology that offers a free relationship with technologies in the world. In this context, Ihde believes that Heidegger introduces a range of possible responses to technology (p. 114). Ihde focuses on the combination of "freedom" and "destiny" in Heidegger's philosophy. For Heidegger, "freedom is the realm of the destining that at any given time starts a revealing on its way" (p. 114). Ihde thinks this quote is important because it introduces free relations to the essence of technology.

⁴³. For example, see "The Historical–Ontological Priority of Technology over Science" in (Ihde, 2010).

Ihde's reading of *destining* in the second philosophy of Heidegger can clearly show his usual approach toward Heidegger's philosophy. Unlike what a philosophical scholar follows, he is not interested in mentioning different interpretations and defending what seems justified. He wants to use Heidegger's philosophy as a jumping off point for his own. In this context, *destining* can be regarded as a kind of inclination.

Related to our discussion on technological determinism, we can ask whether or not there is any exception for this intellectual strategy in which he breaks this specific connection to Heidegger. My answer has two distinct subjects: firstly, when Ihde interprets Heidegger's position on the ontological primacy of technology (praxis) on science (theory) and, secondly where Ihde reads Heidegger's technological romanticism.

I start with the priority of technology (praxis) over science (theory). I showed, in Sections 1 and 3, that Ihde has a specific sympathy with the ontological priority of *Zuhandenheit* over *Vorhandenheit* that was introduced by Heidegger. For Ihde (2010), this is a historical–ontological priority and is not restricted to an ontological one. Specifically, he explored this priority in modern science showing that without the development of instrumentation, we could not see modern science. Ihde refers to the history of modern technologies to illustrate the role of technologies for the rise of modern science. For example, how optics developed because of the invention of lenses, as well as the relationship between the invention of the clock and the rise of modern physics (pp. 56-65).

Though the historical-ontological primacy of technology over science is a kind of revision to Heidegger's philosophies, Ihde's main criticism is that Heidegger cannot see the multistabilities of technologies (Ihde, 2010, p. 114). Heidegger has a nostalgic taste for older artifacts as well (p., 120). To display this contrast, Ihde emphasizes the differences of pens and typewrites in Heidegger's view.

Heidegger (1942/1992) sees a deep relation between human beings' hands and words; he says, "Only a being, such as the human, that 'has' the word can and must 'have hands'" (pp. 84-85). The word is handwriting. Therefore, when we use a typewriter, we do not have access to the genuine way of writing which is related to handwriting. By using typewriters, we fall in a mechanical process that is far from the authentic trend of writing. It is a fall from a creative process into a mechanical one (Ihde, 2004b). This is what Ihde calls a nostalgic account of technology.

Ihde's analysis is totally different. Ihde (2010) even wrote an article about the major moments of the history of writing. This is what he calls "phenomenological variations in writing practice" (p. 128). By coming back to the writings of historians of writing, he emphasizes what has happened since the Ice Age, at least since 20,000 BP, in the methods and styles of writings. The oldest materials of inscriptions were cliffs, stones, and bone "tablets." So, hard and sharp instruments were needed to make the inscriptions. He spoke about a huge turn happening as early as by 4000-3000 BP: the creation of soft writing technologies. The hard tablet was changed into a scroll and uniform light colored surface. The bodily activity decreases for writing by this transformation. This trend leads to a sort of curvilinear playfulness in writing. A pen, which itself has been changed over time, is the production of this instrumental turn. Ihde again remarks that this trend does not determine what can be inscribed, rather it introduces some inclinations. Finally, he refers to the typewriter and keyboard and shows the different patterns of selectivity they introduce. Every pattern requires a specific exploration and one unique analysis cannot reach these different patterns, one size does not fit all. This is what, Ihde thinks, Heidegger does in his analysis of the difference between a pen and a typewriter (pp., 128-132).

I suppose this comparison can show the differences of two phenomenological investigations on artifacts and technologies. One analysis (Heidegger's) does not have any place for historical data and

references, and leads to a romantic sense toward the old technologies (the pen), meanwhile the other (Ihde's) is open to case studies and sees an increase/decrease structure in all technologies. This point approves what I claimed before in Section 1, namely, this claim that Ihde is in the intersection of engineering and humanities philosophies of technology. This philosophy is a totally case studies oriented phenomenology and can not defend a hard account of technological determinism. However, it needs more analytical clarification. This is what is shown in the last section.

6. An Evaluation

These five sections give me an opportunity to evaluate Ihde's project on human–technology relations. As mentioned, my question regards the features of Ihde's dialogue with technological determinism. I explained that Ihde introduces a reading of phenomenology (postphenomenology) to go beyond the deterministic account of technology. Postphenomenology introduces latent *telos* and inclinations as two terms to reject hard technological determinism. This project has come with normative consequences which I referred to in Section 4. Moreover, in Section 5, I argued that Ihde reads Heidegger's two philosophies in a way that may support his view on human-technology relations. I intend to evaluate his project in this section. My specific question here is whether postphenomenology is a successful strategy to defeat determinism's position on human-technology relations.

I aim to come back to the increase/decrease structure, which was introduced by Ihde as a postphenomenological term, to see what he could get and what he might lose on his way: What does he see, and what did he have to ignore based on his postphenomenology? I aim to see this trade off in Ihde's plan by analyzing this increase/decrease structure.

6.1. The Increase Aspect of Postphenomenology

I suppose that five points can show the increase aspect of his project. These are a) opening a new approach toward technological determinism, b) questioning Heidegger's project, c) defeating technological utopism and dystopism, d) introducing multiculturalism, and finally, e) illustrating new concepts. These are explored below.

As told, technological determinism is an answer to the question of human–technology relations. Ihde challenges this position by questioning important presuppositions of the idea. On one side, there is

technology, and on the other side, there are humans. What is the relation between them? Technology shapes human culture. Ihde's position is that the story is totally different, because technologies are in relations with humans in contexts which define the functions for those technologies. When technologies are in relations with humans, we have a specific instrumental intentionality. This intentionality is not neutral and does not determine humans. Technologies have specific inclinations and latent *telus*. They open directions and opportunities to us with specific limitations (inclinations). This new perspective on human–technology relations, which is based on many case studies, is interesting and consistent with his postphenomenology.

Technological determinism only focuses on *Vorhandenheit* and forgets *Zuhandenheit*. In *Vorhandenheit*, the separation of humans and technology is possible. It happens while technology is regarded as a thing and not as a tool. However, when a tool works, *Zuhandenheit* happens which consists of four human–technology relations, cultural diversity (multicultural), and pluriculturity (as the sample of this diversity in image-technologies' era).

The second topic is Ihde's questioning of Heidegger's two philosophies. I showed that Ihde started his project in the philosophy of technology by thinking about Heidegger's two philosophies. However, he intends to go beyond them. Ihde has criticized Heidegger for ignoring a diverse spectrum in which different human–technology relations are developed. This ignorance leads Heidegger to a romanticist approach toward technology that Ihde always criticizes. As I have mentioned, the most important difference between Ihde and Heidegger is that Ihde's philosophy is supported by detailed case studies which cover a huge range of technological stories and allegories. Although neither Heidegger nor Ihde defend a hard account of technological determinism, I agree with Ihde that Heidegger's two philosophies fall into a romanticism which cannot see the increase/decrease structure of technologies.

In this sense, Heidegger's approach is a reductionist one in which he uses one measure for evaluating all technologies. In other words, Ihde admires Heidegger for thinking about the primacy of *Zuhandenheit* over *Vorhandenheit*, but his critique is that Heidegger could not see the spectrum of human–artifact relations. According to Ihde, Heidegger reduces this spectrum in the embodiment relation. This reduction leads Heidegger to a technological romanticism which Ihde totally rejects. His postphenomenological project, since 1979 while writing *Technics and Praxis*, could criticize Heidegger's philosophies for neglecting this spectrum.

Ihde had an interesting exchange with utopism and dystopism as well. I illustrated that there is a direct relation between technological utopism (and dystopism) and technological determinism.⁴⁴ At one level, these two views have wrong presuppositions: They regard an essence for technologies as the main force and cause of a linear history. Ihde does not accept these presuppositions. At the other level, Ihde sees these views as big obstacles to evaluate the positive and negative sides of different technologies. For him, a technological lifeworld is a domain with an increase/decrease structure which cannot be evaluated with a single specific criterion. This perspective creates a space to think about different aspects of technologies. He has thought carefully about the philosophical projects of some philosophers of technology that have evaluated technologies only by one criterion and have not seen the multiplicity of them. So, he has become very sensitive about the normative evaluation of technologies. He usually refers to his key point that technology has an essential ambiguity. One aspect of this point is that technology must be regarded as an enigma in human–technology relations. His criticism of the first generation of philosophers of technology is that they presuppose they know what the essence of technology is. For Ihde (1986), this is an inaccurate position. We do not have enough knowledge of the

⁴⁴. See Section 4.

structure and relations of technologies. In this context, he supposes that technology is not essentially negative or positive; it is essentially ambiguous. Technology has an essential ambiguity which gets meaning in its different relations with humans and the world (p. 131). Therefore, we should not regard it as good or bad before seeing them in these relations. I sympathize with his basic view toward technology.

In addition, Ihde's postphenomenology is open to many concrete technological questions in our era. It is sensitive to the plural embodiments of technologies in different cultures. He believes we can only infer one universal normative value from his philosophy, and that is cultural diversity (or pluriculturality as one aspect of it). The interesting point is that this cultural diversity is directed to many different cultural and economic questions: from the ways cultures export and import technologies to the phenomenon of Islamic fundamentalism, from the relation of privacy and information technologies to many case studies which focus on old and new civilizations.⁴⁵ With regard to these elements, I think his postphenomenology is one of the most comprehensive projects in the literature of philosophy of technology.

Finally, Ihde is very proficient in creating new concepts regarding humanity's new situations in technologized culture and lifeworld. I highlighted many of them in this paper. For example, he conceptualized four human–technology relations (embodiment, hermeneutic, alterity, and background), and came back to cultural diversity and pluriculturality to describe our relation to technologies at the macro level. In addition, he introduced inclination and latent *telos* as two terms to challenge

⁴⁵. For example, in (Ihde, 1990, pp. 124-161), he develops his second program in which these examples have been highlighted.

technological determinism. His related readings of famous allegories and stories are dominant in his writings. I regard this strategy as an advantage of his philosophy.

6.2. The Decrease Aspect of Postphenomenology

Ihde's project, for me, is a comprehensive plan which presents phenomenological philosophy as its method, covers many domains and fields by a unique openness toward different technological subjects and consists of specific intended and unintended consequences. As mentioned, all aspects of this project are not the subjects of my paper. I tried to give a report of his project based on one specific subject, namely, the subject of technological determinism. In this part, I expect to write about the decrease aspect of his answer to this topic by raising five topics.

6.2.1. Technological Determinism and Multistability

Ihde passionately aims to defend his theory that technological multistability at micro and macro levels can reject hard technological determinism. His argument has four points:

- a. There are four human-technology relations at the micro level.
- b. Cultural diversity (multicultural) is viewed when we see human–technology relations at the macro level.
- c. Plurality of technological relations at the micro and macro levels is the necessary and sufficient condition of an indeterministic account of technology.
- d. Therefore, hard technological determinism is invalid.

In Sections 2 and 3, I showed that he accepts (a) and (b). In addition, Ihde (1979) defines hard technological determinism as the determination of a certain direction by using given technological artifacts regardless of other forces and context (p. 42). Ihde (1990) focuses on a single, massive

trajectory happening with technological culture as a feature of hard technological determinism (p. 123). I think these points can show that he accepts (c). However, I doubt that this argument is right; the problem is in (c). I think technological multistability is neither the necessary nor the sufficient condition of an indeterministic account of technology. It will be argued in two steps.

I start with the first part of my claim, namely the part that technological multistability is the necessary condition of an indeterministic account of technology. I think I can easily show that this multistability is not the necessary condition of an indeterministic account of technology. How? By highlighting this point that this indeterministic account of technology is compatible with technological monism as the opposite of technological multistability. This monism means that technological relations can be reduced to a specific technological relations. By referring to this definition, we can imagine a culture in which the monism of technological relations is viewed even though the cultural structures are not determined by technologies. In this context, we would imagine that the other forces and sources can guide the culture. For example, the political order determines this unity. Or like the example of social determinism, the conflicts of the elite may determine the culture. Based on this argument, we can conclude that the plurality is not the necessary condition of his account of technology.

My argument is that if we accept that Ihde's project represents properly the plurality of technological relations, this cannot be the necessary condition for an indeterministic view on technology. From a more fundamental approach, it is a crucial question whether this multistability is reducible to a monism or not. Ihde rejects the position of some first generation philosophers of technology⁴⁶ who see a certain direction by using given technological artifacts. In contrast, Ihde thinks we can imagine different directions for technologies. According to Ihde, these scholars think that the plurality can be reduced to

⁴⁶. Such as Marcuse, Jonas, and Ellul.

a singular direction based on a universal technological rule. Ihde does not accept this view. In other words, we have different layers of discussion. At one level, we can accept the plurality of human–artifact relations. Here, there is not a disagreement between Ihde and Marcuse, Jonas, and Ellul. The disagreement happens at the second level where this plurality may be reduced to a singular way. I supposed that Ihde was right and asked about plurality at the second level as the necessary condition of an indeterministic account of technology. It is surely an open question whether or not the plurality is reducible to a monism.

The other aspect of Ihde’s claim is that this multistability is the sufficient condition for an indeterministic account of technology. I suppose this claim is not right as well. Technological multistability may be divided to the multiplicities of technological design, technological assumption, technological distribution, and technological interpretation. In all these aspects, technological multistability means the diversity of technological relations could not be reduced to a single way and trajectory. Ihde explored this at two levels in his writings. He shows that human–technology relations have a multistable feature at sensory and cultural levels. My point is that this diversity challenges the monism of technological relations. I suppose this approach is successful for rejecting this kind of monism. However, it is not challenging technological determinism. Based on this distinction, we can imagine a culture that even though is governed by technological determinism, has a plurality which is not reducible to a singular way. This means that the combination of technological determinism and plurality is possible. I think many case studies can support this view. For example, imagine the functions of smartphones in diverse cultures and societies. There are many different possibilities for using such devices. In any culture, one dominant direction can be established by focusing on one possibility. So, the output is the diversity of directions in different cultures. In this context, Ihde speaks about a) the ambiguity of technology and b) the different meanings of it in various cultures. I suppose

it is possible that the first view is right and the second one is wrong. This means that we can accept this phenomenological supposition that technology is ambiguous, but the determination of a specific culture by technology may be accepted. It shows that the plurality of technology is not the sufficient condition for an indeterministic account of technology.

My point is that the determination of all cultures by technology denies any plurality, but the determination of a culture by technology does not need this presupposition. I suppose Ihde's failure to make a distinction between these accounts of hard technological determinism is the reason for this confusion. We must distinguish between nomological and culturally sensitive accounts of hard technological determinism. The nomological account may claim that every event is necessitated by antecedent events and conditions together with the laws of technological rationality and development.⁴⁷ Based on this account, the laws of technological development impose a singular direction to history: to all cultures. However, according to the culturally sensitive account, even though technology imposes a singular direction to a specific culture, this direction is different from one culture to another. Hard technological determinism mentions that a single, massive trajectory happens by technology. Is this trajectory in all cultures the same or different? If it is the same, we have nomological determinism. If the answer is "no", the culturally sensitive account of it occurs.

My favorite case study is the application of Telegram in Iran. In this context, Telegram's main function in Iran, which has a semi-totalitarian religious government, is free media for different cultural, political, economic, and private dialogues. Its function in Iran may be totally different from its function in North America. We can suppose that Telegram in Iran has led to a cultural direction. So, this is a kind of hard determinism. However, this does not mean that Telegram necessitates all cultures around

⁴⁷. This term is used by Bruse Bimber in (Smith & Marx, 1994, pp. 80-82).

the world. This is an important question: in what context we want to speak about hard technological determinism? A specific culture or all cultures? As I mentioned, if we think about hard technological determinism in a specific culture, it is compatible with a cultural diversity at the inter-cultural level. In other words, the culturally sensitive account of hard technological determinism is consistent with the diversity of cultures.

6.2.2. Technological Inclination, Autonomous Technology

I showed in Section 3 that, in one aspect, there are two positions on the concept of technological determinism. One position, which prefers to keep this term, highlights some specific accounts of it. For example, Heilbroner in “Technological Determinism Revised” intends to defend a soft account of technological determinism in which technology is in the background and the foreground is the evolving social order (Smith & Marx, 1994, pp. 67-78). The other position aims to introduce new terms in place of technological determinism. For example, Thomas P. Hughes in “Technological Momentum” introduces technological momentum instead of technological determinism as a quasi-deterministic power which, as a time dependent force, keeps itself and controls institutions to follow its requirements (pp. 103-104). Ihde chooses the second position by presenting “latent *telos*” (inclinations) of technology.⁴⁸

I think it is optional to choose either the first or the second position. However, every option must mention what its point is about technological determinism, especially the soft account of it. Unfortunately, this is what Ihde does not do. He particularly had to write about it because he spoke about hard technological determinism. Therefore, if he supposes that this account sees a certain

⁴⁸. In *Technics and Praxis* (1979) he usually uses “latent *telos*”, but in *Technology and the Lifeworld* (1990) he refers to “inclination”.

direction by using given technological artifacts, the question is what the soft account of technological determinism is. Is it similar to his own view which sees an inclination (latent *telos*) for technologies in their relation with humans? Is there any difference between them? Ihde's writings do not answer these kinds of questions.

This confusion may lead to another dichotomy which is not totally clear in Ihde's writings: The dichotomy of technological determinism and autonomous technology. In his introduction, Ihde (1990) speaks about technological determinism. He highlights Burke and White's example on medieval technology. Ihde concludes that technology occupies a foreground position, "Technologies simply follow a line of development almost contextless, as it were" (pp. 5-6). This is not a version of technological determinism, it is an account of autonomous technology's view which regards technology as an independent domain that follows a direction based on its own rules. I discussed the difference in 3.1. In summary, Ihde sees autonomous technology's view as an extreme case of technological determinism. I showed in this paper that this is an inaccurate picture of autonomous technology.

Ihde's postphenomenology, while discussing technological determinism, suffers from an analytical disadvantage. Particularly, it is not able to develop clear distinctions such as the distinction between hard and soft technological determinism, the distinction between soft technological determinism and his view on "the inclination" for technology, and finally technological determinism and autonomous technology's view.

6.2.3. Dual Relations of Technology and Culture

Ihde provides an innovative and interesting analysis of human-artifact relations at the micro level. Though specific inconsistencies are viewed at this level, he represents a comprehensive analysis at the

experimental level.⁴⁹ But my main criticism is on his analysis at the cultural level where he develops Program 2. Many ambiguities happen while expanding this level of discussion. For example, “lifeworld” has not been explored very clearly in his writings. Even though this is a complex term in the literature of phenomenology, he could write more clearly about it. Especially because the topic of his most important book, *Technology and The Lifeworld (1990)*, is technology-lifeworld relations. It is not easy to find a comprehensive account of “lifeworld” in this book. This analytical deficiency is not restricted to this term and some other essential concepts and topics have been left without enough clarifications and elaborations at the macro level. One important topic is the relation of culture and technology.

Ihde does not show the relations of cultures and technologies clearly. As I have mentioned in 2.2 and 2.3, he remarks that technologies have an essential ambiguity. They are embedded in different cultures by creating new relations and technologies. This means that a dual interaction exists between technology and culture. Culture gives a meaning to technology by constituting the technology-culture relation. Moreover, technology in this relation changes its structure. Many questions are raised based on this dual relation. Can we see overlapping areas in different culture-technology relations? May we see active interactions between them? What are the differences between the ways culture changes technology and the way technology changes culture? Human–technology relations are different, but what is the quality of this difference? Are they related to different paradigms? And so on.

⁴⁹. In (Ihde, 1990), we can find some inconsistencies. For example, he says "the machine activity in the role of background presence is not displaying either what I have termed a transparency or an opacity. The "withdrawal" of this technological function is phenomenologically distinct as a kind of ‘absence’"(p. 109). But he mentions somewhere else that clothing as an example of the background relations has a certain opacity (p. 110).

Let's recall Ihde's clock example in a concrete context to illustrate my point. If I want to summarize this example, I can say that the clock-human relation in Western civilization is usually related to the amount of mechanical movement, while in ancient Chinese civilizations it is related to heavenly movements. One artifact, in this case a clock, has a different meaning in each civilization. I have specific questions here: What does he mean while speaking about Western and Chinese civilizations? Can we say that every civilization consists of different cultures? May we have different human-technology relations which have some overlapping areas? Do Chinese civilizations have only one concept for a clock? What can we say about subcultures in these civilizations? What are the relations of lifeworlds of these two civilizations? Can there be common areas between these lifeworlds? I cannot find consistent answers for these questions in Ihde's writings.

After these three critical analyses which are directly related to the subject of technological determinism, I highlight two more criticisms which are not directly connected to technological determinism that ask about the structure of postphenomenology of technology that is an indeterministic account of technology and an answer to hard technological determinism.

6.2.4. Normative Consequences of Postphenomenology

Ihde thinks about a philosophical framework, namely, postphenomenology which aims to reject some dominant approaches such as hard technological determinism by focusing on the ambiguity and uncertainty of all domains like culture, technology, and their relations. Like all other intellectual systems, this position has intended and unintended theoretical consequences. However, my point here is that his moral position, as a consequence of his postphenomenology, is based on two factors. One is his postphenomenology and the other is his fear of agreement with hard technological determinism, as

well as utopian and dystopian views. In other words, this fear guides his position in the ethics of technology as well.

As I illustrated in Section 4, Ihde's position in the ethics of technology is a kind of ethical particularism which does not have any *a priori* fundamental moral principles. We must pay attention to different case studies and think about the temporally moral aspects of them. In this context, Ihde may regard his moral position as moral relationism. But it is a kind of moral relativism which is silent in all technological cases in advance. His postphenomenology has only one universal principle, namely the sensory and cultural pluralities which lead to the recognition of the diversity of moral principles. His main concerns are environmental pollution and cultural-technical violence but these do not mean that we can realize them before the establishment of human-technology relations. When the relations work and after that, we can think about the negative and positive effects of them. But here many questions are raised as well. Is there any common value to the evaluation of different human-technology relations? Who must regard a specific relationship as fundamentalism or political or technological violence? Is there any commensurability to the evaluation of two technology-culture relations? And so on. Ihde's account of postphenomenology does not let him know the answers to these questions. This is what some of his critics have written about.⁵⁰

Does this mean that his postphenomenology essentially is silent about these questions? My answer is "no." Ihde's phenomenology could have universal principles if one fear was absent in it: the fear of three enemies. I think Ihde's fear of agreeing with hard technological determinism, utopian and dystopian views leads him to a reactionary position about the ethics of technology. This means that his postphenomenology has this capacity to establish at least a minimalistic ethics of technology by calling

⁵⁰. See (Selinger, 2006) in which Selinger's, Thompson's, and Verbeek's articles evaluate Ihde's postphenomenology from the normative perspective.

on the increase/decrease structure of technology. Technologies increase our capacities by introducing new relationships between us and the world. Even though they are the cause of some environmental pollution, they could solve parts of these issues too. Both nuclear bombs and vaccines are examples of technologies. In this context, we must think about the increase/decrease structure of them. Can this point lead us to an account of consequentialism? My answer is “yes” if we make a distinction between two accounts of consequentialism, namely rule consequentialism and act consequentialism. In summary, according to rule consequentialism, the moral righteousness of an act depends on the consequences of a rule, but the act consequentialism claims that the moral qualities of an act depends on the consequences of that act. Does Ihde’s postphenomenology introduce an act account of consequentialism by focusing on the increase/decrease structure of technologies? The answer to this question depends on a new picture of the ethics of technology in Ihde’s postphenomenology and a clear distinction between it and technological determinism and technological utopism and dystopism.

6.2.5. The Meaning and Justification of the Practical Turn

Ihde sees the “practical turn”, the account I discussed in Sections 1 and 2, as a condition of possibility for postphenomenology. His presupposition is that we live in a “practical turn” paradigm. In this context, we may ask, “why is Descartes’ subjectivism wrong? Why must not we ask about the distinction between is and ought? Why should we not ask about the epistemological justification of postphenomenology? And so on. His answer is that these topics are connected to the “theoretical paradigm” which was dominant before the paradigm of the “practical turn”. Ihde thinks that the theoretical paradigm is the wrong direction in the history of philosophy and believes that the history of philosophy has been based on theory and not praxis. Ihde (1994) sometimes regards this theory–

oriented trend as Platonism (pp. 34-36).⁵¹ According to Ihde (1991a), the political and scientific situations of the 20th century created the conditions of this turning point (p. 5). I have two kinds of questions regarding this distinction in Ihde's philosophy. One is regarding the meaning of this "practical turn" and the other is related to the justification of it.

What I understand from the "practical turn", is that it is based on Heidegger's famous distinction between *Zuhandenheit* and *Vorhandenheit*. As I showed in this paper, Ihde (1979) clearly develops this distinction. However, when he adds other concepts such as paradigm shift, revolution, and normal, an analytical deficiency happens, he is not successful in elaborating them carefully. These terms and their instances were left in his writings without detailed descriptions. For example, he mentioned that analytical philosophy and phenomenology are the revolutions of the twentieth century, however, we cannot know whether they are two distinct paradigms in the history of philosophy or they are two sub-paradigms which exist beneath one paradigm (pp. xv-xviii). Specifically, I cannot know whether the "practical turn" is a paradigm or an instance under another paradigm.

Ihde (1990) speaks about the paradigm of the "practical turn" in the history of philosophy. This approach divides the history of philosophy into two periods: theory-oriented and praxis-oriented. These two lifeworlds have different norms, criteria and rules which constitute their own knowledge. Knowledge wholly depends on its context and there is no criterion for comparing two views. There are many different intellectual schools and approaches in a paradigm but there is only one school that imposes its norms (p. 27).⁵² I can ask about the reasons for the priority of practice over theory. Is the practical turn justified only because we live in the new paradigm? Is there any reasonable criterion we

⁵¹. See (Ihde, 1979, pp. 5-8).

⁵². In addition, see (Ihde, 1979, p. xv).

can evaluate these paradigms comparatively? Why must we accept the “practical turn”? Why is it clear that the “practical turn” is normatively justified?

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