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ON THE RELATION BETWEEN HUMAN AND TECHNOLOGY

It seems that the natural world of existence for human being is the world of technology. We change the environment through technology in such a way that it serves our needs and we develop artifacts¹ to compensate weaknesses of our body. In order to understand ourselves we have to understand better the relation between human and technology, and especially technological artifacts. There are various perspectives from which one can approach the issue, and one of the most important ones is how technology influences our moral life. Are those artifacts merely morally neutral instruments in non-neutral human decisions, which is one of the existing approaches, or are they somehow participating in co-creating our *Lebenswelt* including the moral life, as the other view claims? How do artifacts influence our ethics, the hierarchy of goods and values, our decision? What is their impact on us and how is it manifest? Here I claim that this relationship, at least partially, can be explained by the concept of the first and the second intentional-

¹ Here I will use artifact in the meaning of technological artifact. The artifacts of, for example, art are not a subject of these deliberations.

ity developed by Mieczysław A. Krąpiec,² a representative of the Lublin School of Philosophy.³ However, in order to do justice to the phenomenon of human–artifact relationship, the concepts of those two kinds of intentionality as elaborated by Krąpiec are not sufficient. I then propose to supplement Krąpiec’s ideas with the concept of the third intentionality with the specification of an artifact’s aim and function.

Aim and Function of a Technological Artifact

The first human–artifact relationship occurs due to the fact that an artifact is a being designed in the mind of a creator. The creator may plan an artifact ‘from scratch’ (e.g., developing a computer) or use an existing being for the designated aim (e.g., using a stone for splitting a walnut). Determining the aim of an artifact, the creator makes its function(s) a means to accomplish this aim. Here I need to offer an explanation regarding an aim of the artifact, its function and the relationships between them. The concept of an aim is well-developed in metaphysics. Aristotle distinguished between the aims of: 1) human action; 2) action in the world of animate and inanimate nature; 3) acts of the Unmoved Mover.⁴ We are interested in the case #1, because technology does not appear either in the case #2 or the case #3. Aristotle said: “Every skill and every inquiry, and similarly every action and rational choice, is thought to aim at some good; and so the good has been aptly described as that at which everything aims.”⁵

² Mieczysław A. Krąpiec, *I–Man: An Outline of Philosophical Anthropology* (New Britain, Conn.: Mariel, 1983).

³ Mieczysław A. Krąpiec, Andrzej Maryniarczyk, “The Lublin Philosophical School: Founders, Motives, Characteristics,” trans. Hugh McDonald, *Studia Gilsoniana* 4:4 (October–December 2015): 405–422, and Mieczysław A. Krąpiec, Andrzej Maryniarczyk, “The Lublin Philosophical School: Historical Development and Future Prospects,” trans. Hugh McDonald, *Studia Gilsoniana* 4:4 (October–December 2015): 423–441.

⁴ See Monte Ransome Johnson, *Aristotle on Teleology* (Oxford: Clarendon Press, 2005).

⁵ Aristotle, *Nicomachean Ethics*, ed. and trans. Roger Crisp (Cambridge, UK: Cambridge University Press, 2000), 3 (1094a).

Even such a short definition lays the ground for deliberation. The aim is the good that attracts us and thus becomes the motive of our actions; there is no action without an aim, there is no aim-less action.⁶ The preparation for an act is a preparation of means to achieve a particular aim, that is, bringing to existence a certain desired state of affairs. In this sense, we can talk about the aim of technology—it is a means of achieving this state of affairs. For example, the aim of this excavator here is to dig a pond in which I want to breed fish—having a fish farm is the intended state of affairs. One can also speak about technology as an aim of his or her acts, but it is a mental shortcut. The statement, “I want to build a bridge,” usually means that I want to have a passage leading to the other side of the river, and not that I simply desire the existence of a certain construction. The statement “I want to have a high-end phone” may not necessarily mean that I want to enjoy faster and better communication with others, but that I want to be admired by those who know how much it costs. In that case the phone becomes a symbol of social status, although it may happen that the owner does not know how to use it.

This is the point when the question about functions arises. Technological artifacts are brought to existence because of a certain aim they are to help achieving, but usually there are many ways to achieve the state of affairs we desire: when we want to provide a passage across a river, we can build a bridge over the river or a tunnel under the river. We also know that technological artifacts are usually used to achieve more than one aim, and yet we are not talking about multi-aim artifacts but multifunctionality.

What is then the function of a technological artifact? The function is a relation between a technological artifact x and the aim y , namely the relation of being a possible means for achieving the aim y .

⁶ In order to exclude ambiguity we should introduce the distinction: “acts of man” (*actus hominis*)—unconscious acts like digesting or breathing, and “human acts” (*actus humanus*) which are conscious and free acts. We are interested here in the latter.

The term ‘possible’ indicates that it is not about the actual use: a subject chooses a target and selects a means but does not necessarily take an action. For the relation to occur (so that the artifact x could be used in its function of being a means to achieve y) requires the artifact x to have certain properties, both those constantly present and the dispositional ones, i.e., the properties which reveal themselves in certain circumstances. It is precisely because of the necessity to have these properties that we speak about the multifunctionality rather than about the multi-aimness of an artifact. This is why we say that a subject ‘chooses’ (determines) the aim and perceives the relationship between his aim and the properties of an artifact, which means that he ‘learns about’ the functions of the artifact.

To illustrate this point let us assume that our aim is to cross the river without getting wet. We need to consider how to do it. At first glance, there are two ways: over the river and under the river bed (let’s skip the opportunity to build the passage in the stream of the river). Each method requires a definite set of an artifact’s properties that would be an appropriate means to reach the aim. For example, moving over the river requires an artifact with an adequate carrying capacity (tenacity, shear resistance and flexural strength, etc.); crossing under the river bed requires an artifact of high compressive strength, water resistance, etc. Let’s see what we have at our disposal to achieve the aim—crossing the river. Suppose we have only a reinforced concrete pipe of the appropriate length. We verify whether the pipe can be used to achieve the aim in the first and the second case, so go over and under the river. This verification is done by comparing the properties of the pipe with previously determined sets of necessary features to achieve the designed aims by the means of the first and the second method. If the pipe displays both sets of necessary properties, it is an appropriate means to reach the aim by both methods—it can perform the function of transportation both ways. Whether we call the final structure a bridge or a tunnel depends on whether it reaches the aim at all and how it does

it. The way in which we use an artifact (in this case reinforced concrete pipe) makes a new artifact out of it, namely a bridge or a tunnel. However, in this case we are dealing with one-functionality—the function can be called transportation—and there is one aim. Multifunctionality means that an artifact may be a proper means to achieve various aims. For example, a reinforced concrete pipe is multifunctional: it can become a tunnel—a proper means to cross the river, or it may be a tank for storing liquids. The tightness of the tube (a property) in the first case prevents the ingress of water into the tunnel, and in the second case it prevents its leakage outside.

The fact that an artifact is created due to achieve a particular aim (or particular aims) for which it is to be employed does not exhaust all the possibilities of its use. Usually there are many aims for which a given artifact can be used to achieve, including the ones that are beyond the creator's plan or which were considered irrelevant during the process of creation. For example, bicycles were designed for recreation and fun. The transportation of people and things, however, the aim otherwise obvious, was not the most important one in the mind of its creators. So in an artifact there is at least as many functions as there are aims to which the artifact is currently a means. A technological artifact can, of course, be originally designed to be a means of achieving a number of aims as, for example, Swiss knives, which can be used for sawing something, opening a can, cutting, uncorking bottles, etc. It can be called an intended multi-functionality (versatility).

A technological artifact can also be for completely new aims, independently from the aim(s) intended by its creators. For example, a computer was not designed originally to provide entertainment, however, entertainment has become the main reason to buy them. Nevertheless, the properties of an artifact must allow its new usage—here a computer has the properties that allow this kind of entertainment. In addition, a technological artifact after being created may 'suggest' different aims which can be obtained by means of it, that is, its properties

give the possibility to identify new aims including the ones which had not been foreseen by the author.

Various technological artifacts can also be used for the same aims, and therefore they can have the same functions: a bicycle and a TV function as entertainment, as both are means to achieve the desired state of affairs which is contentment, even if the bike cannot transmit information and the TV does not perform a fitness function. However, using an artifact for new functions has also limits: the material and the structure limit the user's creativity—and this is why we have many different ideas for exploiting a knife, but nobody who is reasonable will use its blade as a seat (ouch!).

Two Intentionalities

Based on the discussion so far, it can be proposed that achieving an aim by means of a technological artifact has the following scheme: a subject, attracted by a certain imagined state of affairs, makes it an aim he wants to achieve; he selects measures to undertake an effort to construct an artifact. It is certainly possible that some different artifacts are needed to achieve one aim or that one artifact can help to achieve several aims. However, the case of one aim and one artifact is sufficient to explain the whole issue, and therefore the other possibilities need not be considered to avoid excessive and unnecessary complexity in considerations. The subject then conceives an artifact with properties which allow fulfillment of the selected aim. The properties required determine the structure and material from which it is to be made. That conception in the mind of the creator is the first intentionality (the intentional content).⁷ The engineering practice shows that the design is carried out not only in the intellect, but it takes the form of plans—paper or electronic (e.g., CAD). Such plans, in my definition, will be understood as visual representations of the first intentionality.

⁷ Cf. Krąpiec, *I-Man*, 182.

The second intentionality (secondary intentionality according to the terminology used by Krąpiec⁸) is the ‘petrification’ of the first intentionality, which is, the creator’s conception, ‘embedded’ in the material and structure of the completed artifact. The conception is possible to be read by another intellect—the user of an artifact. However, we do not have to construct artifacts ourselves, because they may have already been done by someone else and we have a lot of artifacts at our disposal. After encountering an artifact, the subject will search for the desired properties in it that will allow achieving the desired aim, and if he does not find the right artifact, he will look for another, satisfying, artifact. Of course, one may find many artifacts that have the required properties, but some are better to achieve the aim (more efficient, more effective, cheaper, quieter, etc.) and therefore they are chosen over the others. However, it is not entirely relevant to analyze such a case.

The Third Intentionality

Of course, another intellect may find it difficult to perceive from the artifact the indicated intentionality, and a long time ago a remedy for such cases was introduced—a manual with directions, of some sort, accompanying to the artifact, explaining the relationship between the specific arrangement of this particular piece of matter and the aim(s) for which it was created. However, there are instances when it is not possible to read the first intentionality—the plan of the creator—from a given artifact and there is no manual of any sort. I do not mean here an intentional disregard of the aim of the artifact but simply ignorance (I have read, for instance, about a test, where an iPad was use-tested as a cutting board). For example, a representative of primitive peoples, finding a gun, might decide to use it as a pole for peas. This re-ascription of an aim I shall call the third intentionality.

⁸ Id.

A user who has encountered an artifact but is not able to read the intentionality included in it, can only ascribe to it a new function, that is, on the basis of the discovered properties he can establish a new aim the indicated artifact may be a means to—as happens in the aforementioned case of a gun used as a pole for peas. But isn't the situation identical to the case when man found a branch and used it as a pole for peas? Is it the reason to introduce another—third—intentionality? A man, intending to support peas (aim) and determining what objects are available (a stick), creates a plan to use a stick to reach the aim (first intentionality), and then uses this stick in a planned manner and thus creates an artifact: a pole to support peas (second intentionality). Will the situation be similar to the case with a rifle and using it as a stick for supporting peas? Cannot an iPad be treated as a stone or a piece of wood for beating meat? It is obviously a piece of matter with satisfactory properties due to which it may become a means to beat meat, so can it perform the same function as a kitchen board.

There are two reasons for a negative answer to the above questions and for the introduction of the third intentionality: a practical and a theoretical reason. The practical reason refers to experience in dealing with the products of technology. Without knowing the aim of a given device or ignoring the possessed knowledge about the aim for which it was created and not using it in accordance with the first intentionality (the plan of a creator), and using it for something else may simply break it. It would have happened if an iPad had been used as a board to beat meat. Perhaps it would serve for many years as a board but it would cease to be an iPad because it would be broken. Similarly, a shotgun stuck in the ground and exposed to moisture within a short time would not be suitable for shooting. What does it mean to 'break a device'? It denotes depriving it of the possibility to serve an aim(s) for the execution of which it was originally designed, and so depriving it of certain function(s). It would mean the destruction of its second inten-

tionality, despite the fact that the new aim assigned to the artifact is implemented.

So why would we still say that an iPad used as a meat board is broken instead of saying that somebody has a new kitchen board? Why do we get upset when someone does not read the manual and destroys a device even though the device is used by the person to meet a new designed aim? It is because a third intentionality assigned to an artifact can be risky since it may damage the second intentionality and deprive the device of its basic properties which provide the possibility to reach the primary aim: the reason for which the device was constructed in the first place. (In practice we know that the introduction of the third intentionality is undesirable at least from the point of view of the suppliers of artifacts, for its effects are not covered by the warranty.) And once the artifact is permanently no longer able to achieve the aim it was designed, it ceases to be this artifact.

In order to clarify the theoretical rationale consider a thought experiment. Let's ask the following question: Does a primitive man who does not know and is unable to find out about the aim of the creation of a given artifact as well as the intended functions of it and thus eliminating the possibility of using an artifact in action due to the indicated ignorance, deprive the artifact of something while making use of it? Let's make an assumption at this point that while misusing an artifact (an iPad) the man does not break it. To resolve the problem we need to refer to the second intentionality and the difference between it and the first intentionality.

The first intentionality exists due to the designer or creator, whereas the second intentionality is embodied in the artifact itself—the form (arrangement, structure) of the matter, potentially able to perform these or other functions, that is, being able to become a means for the designed aim. The second intentionality is still present in the iPad through its structure and the selected material, and unless someone does not destroy the structure it will 'wait' for another intellect which may

someday read this second intentionality. Of course, it may never ‘happen,’ but this is what distinguishes the iPad used as a kitchen board from a piece of stone with a similar shape—the iPad is for a specific aim and its properties are correlated with the aim due to which it may become a means to the original aim, that is, it can fulfill the functions—we cannot play a film with a stone whereas it may be done by means of the iPad. That is why we should speak about the third intentionality and not about the first intentionality ‘bis,’ that is, about treating the iPad as an object of nature.

There is one more rationale behind the introduction of the third intentionality which can be called semantic. Technological artifacts are named (I’m talking about the type not about the name of the company producing it or the brand name) in relation to the ways in which they allow achieving the corresponding aims. Therefore, we are talking about the iPad used as a kitchen board and not simply about a new type of kitchen board. The primitive man will not only use the tablet with the name iPad as a board for cutting meat, but will also name the indicated object a meat cutting board. The way we name things both from the philosophical and psychological point of view determines the way we think about them, and in consequence, it determines ideas concerning the aims of their application.

Application in Theory and Practice

Answering the questions from the introduction about the relationship between human and technological artifact is comple, but at least we can shed a bit of light on the matter. At least we know now that an attempt to understand technological artifacts and their role in our life without considering the described relations will omit some constitutive properties. Those relations were presented here on the occasion of analysis of the three internationalities. We can think of the relations, creator–creation, and user–an adequate means, from the point of view of understanding an artifact as human-independent entity or that of un-

derstanding an artifact as entirely modeled by the user to the extent that it is like a new creation every time somebody thinks about it or uses it. The former approach entails relativism and psychologism in understanding artifacts, which—from the described (also practical) reasons—is not appropriate, if not dangerous. Objective elements of the relation are described by Krąpiec. He shows how intentionalities (his second and my third) are rooted in the artifact and not only in the subject. He writes:

Obviously this does not mean that the intentional content of the sign magically disappears when some person is not looking at it and, likewise, that it miraculously reappears when it is viewed by someone else. Because it exists through the existence of matter in which it has its foundation, it can even exist “eternally” (i.e., very long as for example on the moon). But when the intentional content of the sign is separated from the human intellect, it is neither a symbol-sign nor is it “read” as an intellectually expressed content which is subordinated to another human being. Hence in an absolute separation from the human spirit, it is generally not a cultural work.⁹

There are many applications of the solutions offered above, but let us consider an important one with its theoretical and practical significance—namely the one concerning value-ladenness/value-neutrality of technology. The debate concerning values was selected as important due to its significant presence in the analyses of technology both theoretical and practical. And, even if we could expect phenomenological answers from a theoretical point of view it is also interesting that the debate on values found a solution on the ground of the realistic philosophy of the Lublin School of Philosophy and used concepts from it.

To frame this discussion, one analyzes the impact of technology in relation to values (a theoretical dimension) and then offers a solution as to how to steer technology in its development, use, utilization, etc. (a

⁹ Id., 401.

practical dimension). First one needs to answer whether technological artifacts have a relation to values or they are value-free? And within the discussion there exists an argument¹⁰ that technology is value-free, because if humanity is extinct there is nothing left in technology that would be value-related, so technology is value-free. Technology should be analyzed separately from humans. The above considerations show that we cannot provide a comprehensive analysis of technology if we separate it from its creator and user. The ‘separation’ argument and the debate about value-ladenness/value-neutrality (value free) initiated the consideration, but any attempt to understand technology demands understanding how it is related to human and what kind of relation it is.

The proffered analyses supported the claim that if we want to understand fully what for technology is for humanity we cannot analyze them as separate systems. There are no artifacts without their creators and users, humans, and there are not users of artifacts without artifacts. So the way that technology is influencing humans is of a force-feedback character.

Also vague terms used by the supporters of the claim that technology is value-laden can be well explained. For example, the difference between ‘embedding’ and ‘promoting’ values can be explained, in my belief, in terms of the intentionality concept. ‘Embedding’ values would take place at the level of the first intentionality: the values intended by the manufacturer become included in the design of the artifact. ‘Promoting’ values occurs when the artifact is used, either in the form of the second intentionality that is read by the user from an artifact (a disabled person in a wheelchair cannot go by bus without a low floor allowing to enter a wheelchair, because he cannot get on it), or in the form of the third intentionality when a user employs an artifact in a manner not intended by the creator.

¹⁰ Other arguments are analyzed in my book *Technology and values. The debate on value-neutrality of technology* [Technika i wartości. Spór o aksjologiczną neutralność techniki (Lublin: Academicon, 2014)].

The debates that require understanding the technology-human relation like the debate about the value dimension of technology are not purely academic. An answer to the question whether technology is value-laden or value-free has a practical dimension. If the answer is that technology is value-laden, then this aspect of technology must or at least should be developed and not discouraged in the process of sponsoring research, development, introducing into market, utilization, etc. This in turn would influence the palette of choices related to the existence or not existence of those artifacts.¹¹ From those who would have to deal with those considerations one can expect resistance, and they would probably opt for value-neutrality. Those in turn who consider personal and social effects of technology would like to see value-ladenness and various bodies like Technology Assessment groups, ethical committees, etc., which would determine this ladenness and suggest corrections or solutions.

Development of autonomous technologies like AI, autonomous cars, drones which decide whom to attack, redefine the human-technology relation and its moral dimension regardless if we are realists, phenomenologists or relativists. Technology does not recognize and respect those distinctions. So it seems like high time to conduct such analysis before technology does it for us. While we still have a choice.

¹¹ I acknowledge that there are views like 'autonomous technology' that technology itself determines its own course of development, and the only thing we can do is to slow it down or to speed it up, but I will not be discussing the view here. It is enough to notice that prohibiting is slowing down to infinity.

ON THE RELATION BETWEEN HUMAN AND TECHNOLOGY**SUMMARY**

According to the author, we live in the world which requires us to better understand the relationship between humans and technology, and especially technological artifacts. The author claims that this relationship, at least partially, can be explained in the framework of philosophy cultivated by the Lublin School of Philosophy represented by Mieczysław A. Krąpiec and his concepts of two intentionalities. However, in order to do justice to the human–artifact relationship two concepts of intentionality as elaborated by Krąpiec seem to be insufficient. The author then proposes to supplement Krąpiec’s concepts of the first intentionality present in the maker’s design and the second intentionality present in the artifact as an embodiment of that design with a concept of the third intentionality which is the inventive contribution of a user.

KEYWORDS: man, technology, aim, function, morality, value, intentionality, artifact, Krąpiec, Lublin School of Philosophy.