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Flores, Fernando

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LUND UNIVERSITY

PO Box 117
221 00 Lund
+46 46-222 00 00

From Husserl to Ihde and Beyond

Some evolutionary lines in Contemporary Philosophy of Technology

Jigsaw pieces of contemporary Philosophy

This text is a kind of introduction to my second book in the series “The humanist as Engineer”. In my work, I have been deeply influenced by Don Ihde and his postphenomenological approach to the philosophy of technology. My approach to Ihde’s postphenomenology is historical and following Ihde’s pragmatic directives, I have chosen to move freely between the philosophy arising after Kant, Hegel and Marx and I do not hesitate to make references to both Modern Art and Psychoanalysis. I understand that in the history of thought there have been paradigmatic problems and frontiers that characterised a period of time which can be considered as schools or traditions; however, these collapsed with the detonation of Postmodernism and Postphenomenology. In this frame, nobody lives up to this philosophical *bricolage* as Don Ihde and his postphenomenological project does. Don Ihde’s work is an example of the fertility of postmodern accounts especially when it is the consequence of a well-balanced administration of the eclectic elements within the project. Albert Borgmann observed the importance of Ihde in this respect:

Don Ihde is the great mediator of contemporary philosophy. He has connected phenomenology with postmodernism, philosophy of technology with philosophy of science, Continental philosophy with analytic philosophy. He has tirelessly mediated across oceans, and he has widely explained himself through his prolific writing. Mediation for Ihde is more than scuttling back and forth between opposing schools and pleading for mutual understanding. There is a center to his mediations, a distinctive position first sketched in his *Experimental Phenomenology* of 1977, clearly outlined in the classic *Technics and Praxis* of 1979, expanded and refined in many ways since, and summarized for the time being in *Chasing Technoscience* of 2003.¹

There are certainly many similarities in Ihde’s and my own approach, and I will try to show some of those. I could remit myself to Albert Borgmann’s words when he wrote, “the multiplicity of perspectives of Don Ihde’s work is essential for my own work and if I do not call my approach as “postphenomenological” is only because I do not want to force my own views in his outstanding project.”

Postmodernism has left behind lots of scattered modernist philosophical remnants. It left a chessboard with only few pieces to work with, and in this allegory, only as references. The philosophical schools remains, but the study of them is strictly for an education in the history of ideas. The situation is aggravating since the most important works from the 1960’s and forth, deliberately have avoided obvious identity patterns. A word in Rio de la Plata’s jargon language describes this situation, *cambalache*, a sort of “flea market” where everything lies higgledy-piggledy.

Deconstruction and the focus on *differences* are central to Postmodernism. Remaining is therefore the intersections, the contrasts, shadows, and sketches. When trying to orient in such an intellectual environment, the task reminds of patching scatterings, and building with tools of

¹ Borgmann, Albert. “Science and Technology”; in Selinger, Evan (Editor) *Postphenomenology; a Critical Companion to Ihde*; p.

eclecticism. Not long ago, you could develop a problem from Marx as well as from Husserl. However, today it is necessary to build upon that which makes both Marx and Husserl jigsaw pieces in a totality – characterized by its lack of focus. This situation has also resulted in a demand, greater than ever, for competence in the field of history of ideas. In this article I suggest an eclectic philosophical tool which is centred on the idea of a *historical post-phenomenology*, understood as a *bricolage* of epistemologies which connect the ideological criticism of Kant with a philosophy of praxis in Marx, to a phenomenology of essences in Husserl and another of perceptions in Merleau-Ponty and to Heidegger's anthropology. An eclectic background to phenomenology was anticipated by Merleau-Ponty when he wrote that phenomenology "can be practised and identified as a manner or style of thinking that existed as a movement before arriving at complete awareness of itself as a philosophy. It has been long on the way, and its adherents have discovered it in every quarter, certainly in Hegel and Kierkegaard, but equally in Marx, Nietzsche, and Freud."²

Intentionality and simultaneity

The question of the ontological status of thinking in contemporary philosophy was central for act-philosophies as the philosophy of Franz Brentano, who brought it from Scholasticism. He claimed that the acts of consciousness are directed toward an object and called this directedness the *intentional relation*. Writing about the "intentional process," he meant not only "to think", but to "think *something*". "To think" then could be specified as *acting mentally*. Because of the work of Brentano, "thought" could be defined without any other reference but to itself *in movement*. In this approach to the act of thinking there are two counter parts: "thought" proper, and its object; there are no thoughts without an object to which thoughts are intentionally directed to in a mental movement. For Brentano, the intentional act is characteristic to every *psychic* act, for instance "to believe" or "to judge", "to perceive", "to dream" or "to desire", are intentional manifestation of the intentional act in different manifestations. Brentano's intentional act was presented in his *Psychologie vom empirischen Standpunkt* from 1874.

Every mental phenomenon is characterised by what the scholastics of the Middle Ages called the intentional (or mental) inexistence of an object, and what we might call, though not wholly unambiguously, reference to a content, direction towards an object (which is not to be understood as a thing) or immanent "objectivity."³

For Brentano *thinking happens in a compact time*. Brentano believed in the *simultaneity* of "thinking on A" and "being aware of thinking on A":

Every mental act, therefore, is accompanied by a twofold inner consciousness, by a presentation which refers to it and a judgment which refers to it, the so-called inner perception, which is an immediate, evident cognition of the act.⁴

Brentano tried to explain the multiplicity of objects present in consciousness with the introduction of two modalities of thinking; in *recto* and in *obliquo*:

[...] someone who is thinking of a mental activity is, in a certain way, thinking of two objects at the same time, one of them in *recto*, as it were, and the other in *obliquo*. If I think of someone who love flowers, then the person who loves flowers is the object I am thinking of in *recto*, but the flowers are what I am thinking of in *oblique*.⁵

² Merleau-Ponty, Maurice. *Phenomenology of Perception*. Routledge, 1994; p. viii.

³ Brentano, Franz. *Psychology from an Empirical Standpoint*; p. 88.

⁴ Brentano, Franz. *Op.cit*; p. 143.

⁵ Brentano, Franz. *Op.cit* Supplementary Remarks; p. 272-273.

These “guiding” references of the intentionality of thought (*recto* and *oblique*) disguise the fact that the *recto-object* and the *oblique-object* cannot be thought simultaneously. In the consciousness of Brentano time is frozen in eternity. Everything happens in a simply moment.

Husserl had many critical assignments about Brentano’s conception about the real nature of the “intentional inexistence of an object”, but I will try to show, that the essential problem with Brentano’s idea about the intentional act that motivated Husserl to find new solutions had to do with the *simultaneity* of the intentional act as such. It was his old fashioned theory of time-consciousness that made his philosophy insufficient for Husserl. Brentano himself was largely preoccupied on the *unity* of consciousness arguing on the possibility of thinking on many objects simultaneously.⁶

The phenomenizing process

There are some aspects in Brentano’s understanding of intentionality that Husserl disapproved. According to J. N. Mohanty:

[Husserl] prefers to drop Brentano’s use of the term “mental phenomena,” in view of the ambiguities that surround his doctrine of “inner perception.” The location “intentional experience referring to an object” should not be construed as meaning that two things are present in experiences, an object and an intentional act directed toward it.⁷

In fact, a consequent application of this difference, leads to the consequence that if to think is to think something *in recto* it is not possible to think something in *recto* and *at the same time* be aware of this content *in obliquo*, because this would mean that “two things are presented in experience”. To hear a person A singing, is not to hear the tones of the music. This last part of the mental content is lost “behind” the person’s singing. *Simultaneity* of “thinking on A” and “being aware of thinking on A” would be to be aware of *thinking about thinking something* which cannot possibly be *the same act*. Intentionality is *absolute* and demands the full concentration in the pure action of *being directed through an object* and the fact of being “conscious about consciousness” demands that the mind has itself as an object.

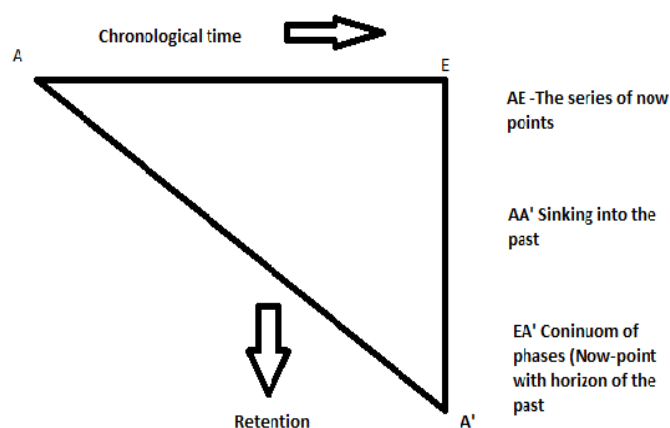
Husserl showed that the intentional act can only be occupied by one of these two *modes* of the mind at each time. He will call these the noema (the presented as presented) and the noesis (the presented as cognition). This can be also deduced from Husserl’s understanding of what he called “internal time consciousness”. In his *Lectures on the Phenomenology of Internal Time Consciousness*, Husserl distinguishes between three notions of time: an objective chronological time, an inner time of experience, and a deeper consciousness of ‘inner time’. Based in his reflections about the phenomenology of the consciousness of time, Husserl arrives at the conclusion that there are two fundamental forms of memory. One he calls ‘primary’ in which the perceived is processed as *retention* and *protention*. A second form of memory, which Husserl calls ‘secondary’, is responsible of the recollection of the perceived.

⁶ See Op.cit; Chapter IV: The Unity of Consciousness; p. 155.

⁷ “Only one thing is present, an intentional experience, and “if this experience is present, then eo ipso and through its own essence (we must insist), the intentional ‘relation’ to an object is achieved, and an object is ‘intentionally present’”. He thus rejects a relational understanding of intentionality. He is not trying to understand how consciousness (which is allegedly within me) relates to an object out there. There is no intentional experience without already having an intentional object. Likewise, the alleged consciousness that is to achieve its relation to an object is already, to begin with, consciousness of this object and of no other.” Mohanty, J. N. "Intentionality." A Companion to Phenomenology and Existentialism. Dreyfus, Hubert L. and Mark A. Wrathall (eds). Blackwell Publishing, 2006. Blackwell Reference Online. 07 May 2011
http://www.blackwellreference.com.ludwig.lub.lu.se/subscriber/tocnode?id=g9781405110778_chunk_g97814051107788

We characterized primary memory or retention as a comet's tail that attaches itself to the perception of the moment. Secondary memory, recollection, must be distinguished absolutely from primary memory or retention.⁸

The series of “now” perceptions of an object are “sinking” into the past becoming weaker in intensity but at the same time, a transcendent presentation of the whole object is perceived independently of all the instantaneous “now” of it. This series of “now” are connecting the disappearing of old “now-perceptions” and the appearing of new “now-perceptions” as it happen when I hear the tones of a melody. Primary memory both retains (retention) and anticipates (protention) the perception of the moments of the ‘now’. Husserl pictures this process as follow:



Presentation 1: Husserl's diagram about the process of retention and of recollection

The whole presentation of an object is then “moving into the past” and “anticipating the future”, which means that the intentional act, is never static, focusing *either in the intentional object or in the supporting elements of this act*. However, in any case, it is always one and the same object.

Bringing thoughts to consciousness

However, Husserl's solution to Brentano's simultaneity-paradox also missed an important point, which created insolvable problems respect to his understanding of consciousness. If intentionality is absolute and in one of its states is fully occupied by the noematic content, some other mental phenomena *that occur simultaneously* cannot be conscious. (They can be grasped but only in *another* presentation that can be displayed in another moment). Consequently, in any situation, something is always missing. So if “to think” is “to think something”, it is also to “miss something”. What is missing is then always the *straightforward* noema, because it is the object of the intentional act which I am conscious about. The straightforward noema is grasped, first when it is the object of reflection, (when it becomes the *secondary* noema of a straightforward noema in

⁸ Edmund Husserl. Lectures on the Phenomenology of Internal Time Consciousness(1893-1917). Kluwer Academic Publishers; 1991; p. 37.

a noetic content). Using Brentano's terminology, only objects that are thought *in obliquo* can be conscious.

To "be conscious," then, is to be aware of some mental content which is not "directed" *to any object different from itself*. It was another of Brentano's pupils who ultimately explained the dichotomy. The influence of Brentano in Freud has been studied by James Ralph Barclay:

Any evidence that Freud might have been influenced by Brentano could be produced only by carefully studying the writings of Freud and finding their ideas specific to Brentano. James Ralph Barclay did so and concluded that several of Freud's concepts could be traced to Brentano. The notion of intentionality appears in the modified form of a psychic energy channelled toward instinctual goals and wish-fulfilment. Brentano's "intentional existence" became Freud's "cathexis." To Freud, as to Brentano, perception was not a passive process but an activity endowed with psychic energy. The evolution of primary process to secondary process, as described by Freud, is also traceable to Brentano.⁹

When psychoanalysis talks about "repressed desires", or speaks of "inactive" conscious performances, the reference is to noematic contents that *eclipse* the conscious sphere of the mind. Only that which can be "entertained" in the mind, can be focused (be conscious). For this reason, for an unconscious content to become conscious, it has to be melted (filtered) into the background of awareness.

Husserl then, creating the distinction between noema and noesis to distinguish the mind occupied by its object and the act of thinking on this object, and understanding that they are not present at the same time, missed the fact that when one of them is connected to consciousness, *the other must be unconscious*. I cannot be aware of a presentation that I am not focusing on, that is, that is not *intentioned* and cannot be *pragmatically confronted*. In a completely conscious system, the noema and the noesis (the conscious presentation of it) are two names for two moments of a process that exclude each other.

In psychoanalysis, "unconsciousness" means that the noetic component disappears behind the noema. The noema do not destroy the noetic, only *eclipses* it. If there is the issue of requests, then desire becomes identical with its noemata, if there is an issue of a memory, the memory becomes identical with its noemata etc. On the other hand, in consciousness, the noetic process occupies the mind converting the noema to its object. Psychoanalysis' methodology of *catharsis* then, *substitutes the noetic manifest with latent noematic contents*. "To be unconscious" means to be eclipsed by noemata, an *obstruction* that makes reflection (consciousness) impossible.

I have noticed in the course of my psycho-analytical work that the psychological state of a man in an attitude of reflection is entirely different from that of a man who is observing his psychic processes. In reflection there is a greater play of psychic activity than in the most attentive self-observation; this is shown even by the tense attitude and the wrinkled brow of the man in a state of reflection, as opposed to the mimic tranquillity of the man observing himself. In both cases, there must be concentrated attention, but the reflective man makes use of his critical faculties, with the result that he rejects some of the thoughts which rise into consciousness after he has become aware of them, and abruptly interrupts others, so that he does not follow the lines of thought which they would otherwise open up for him; while in respect of yet other thoughts he is able to behave in such a manner that they do not become conscious at all—that is to say, they are suppressed before they are perceived. In self-observation, on the other hand, he has but one task - that of suppressing criticism; if he succeeds in doing this, an unlimited number of thoughts enter his consciousness which would otherwise have eluded his grasp.¹⁰

⁹ Ellenberger, Henri F. *The Discovery of the Unconscious. The History and Evolution of Dynamic Psychiatry*. Basic Books, 1970; p. 541-542.

¹⁰ Sigmund Freud. *The Interpretation of Dreams*; 1900. "Chapter 2: The Method of dream interpretation."

When the philosophical literature of Husserl's time discussed consciousness, two different mental states were distinguished: "to be aware of A" and "to experience the A's direct presence". It was all about degrees of consciousness or "focus". I could say that "I am aware of the existence of my hands" even when I do not focus on the idea of them. But just because of that, I can argue the opposite, namely that "I am unaware of the existence of my hands" when I do not focus on them. The boundary between what is conscious and what is unconscious then, is a question of definition. But independently of definition it is a fact that these two moments of the mind are not experienced *simultaneously*. Some reference to these differences seems to take place in George Edward Moore's classic portrayal of "direct apprehension" and "indirect apprehension" and his understanding of *common sense* that later will fascinate Wittgenstein.¹¹

Freud managed to solve the question of the opposition between acting and being aware of the acting. In fact, when "I am acting; I am unconscious ("being" through the noema)" while when "I am thinking on the noema; I am". This was formulated by Jacques Lacan who clearly talks about the "talking thing" of the Unconscious: "What we must say is: I am not, where I am the plaything of my thought; I think about what I am where I do not think that I am thinking."¹²

Further, for psychoanalysis, unconscious contents are a kind of *alienation* that must be confronted. For psychoanalysis, there are not only unconscious mental contents; there is also a "place" called "the Unconscious" (with a capital letter) in which these unconscious contents "are". There is something mystic about the Unconscious which has to do with the inevitable association of it with a "place".

The question of the existence of unconscious mental acts was carefully studied by Brentano who discarded it as impossible. Brentano's argument against the existence of unconscious mental acts relies on his theory of the *simultaneity* of the contents of a single intentional act:

There are undoubtedly occasions when we are conscious of a mental phenomenon while it is present in us; for example, while we have the presentation of a sound, we are conscious of having it. Now the question arises, in such a case, do we have several heterogeneous presentations or only a single one? [...] We can say that the sound is the *primary* object of the act of hearing, and the act of hearing itself is the *secondary* object. Temporally they both occur at the same time, but in the nature of the case, the sound is prior. [...] These results shows that the consciousness of the presentation of the sound clearly occurs together with the consciousness of this consciousness, for the consciousness which accompanies the consciousness presentation of the sound is a consciousness not so much of this presentation as of the whole mental act in which the sound is presented, and in which the consciousness itself exists concomitantly. Apart from the fact that it presents the physical phenomenon of sound, the mental act of hearing becomes at the same time its own object and content, take as a whole.¹³

However he testified that there have been plenty of illustrious predecessors who believed in the existence of unconscious mental contents; among others, Brentano names Thomas Aquinas, Leibniz and Kant.¹⁴

For psychoanalysis, there is only one way to access to the unconscious contents that are "in the Unconscious", and it is through the psychoanalytical *praxis*; through the act of talking with the Other. To get in contact with the Unconscious, it is necessary to *perform therapy*, or what is the same, to get into a specific praxis. I can see here the pragmatic turn as the way to solve the problem of the alienation of the mind. Psychoanalysis evades solipsism recurring to the praxis of

<http://www.psywww.com/books/interp/toc.htm>

¹¹ George Edward Moore. *Some Main Problems of Philosophy*. Routledge, 2004.

¹² Lacan, Jacques. *Écrits*. W.W. Norton & Company, 2006; p. 518.

¹³ See Brentano, Franz. *Psychology from an Empirical Standpoint*; p. 126-129.

¹⁴ See Brentano, Franz. *Op. cit.*; p. 103.

therapy. Is in therapy where the noetic contents reveal to intersubjectivity. The “truth” of psychoanalysis is the “aha!” of the praxical revelation.

The question about the *asynchronousness* of the intentional act, leads Husserl’s phenomenology to another characteristic feature. Because the essences or universals are noetic contents, they can be grasped in the reflective state of the mind. If the mind is occupied by *straightforward* noemata, say “a chair”, it cannot be occupied by the essence “chair”. Therefore, some *reductive* processes are necessary. These “reductions” must be a kind of praxis that is akin to psychoanalytical therapy.

From propositions to presentations

With Heidegger, the opposition between synchronousness and asynchronousness is resolved into *contemporariness*: the *Dasein*. The parallel processes of intentionalization and pragmatization, become radicalized and the noema become *pragma*¹⁵; no more the object of intentionality, but the object of human action. With Heidegger thinking get into the historical time and becomes existence. Heidegger realized philosophically the consequences of psychoanalytical therapy merging the Husserlian reductions in one readiness-to-hand of the world. In praxis, it is no longer possible to distinguish *action as action*, from *action as thinking*.

The most important consequence of this turn is the reaffirmation anticipated by Marx and the pragmatists, that “truth” can only be revealed in praxis. And that questioned the existence of “propositions.” Their existence can be traced back to Aristotle who considered it a sentence which posits a question about the truth or the falsehood of something. The philosophical question about the existence and nature of propositions is related to the question of truth and their place in the philosophical task. Until the work of Marx and then Heidegger, the question of truth as “propositional” or pertaining to “logic” was the dominating approach of the philosophy of the West, concerned with the foundations of the truth of empirical science. (As an example, Charles S. Peirce and both Brentano and Husserl were interested in the study of judgments and propositions as the grounds of truth.) For Heidegger, the question of truth belongs to the central inquiry about Being, because the word “truth” (originally meaning “thing”) is something that “shows itself”.¹⁶ Heidegger gives us three conceptions of truth from which he will distance itself from:

1. That the “locus” of truth is assertion (judgment):
2. That the essence of truth lies in the “agreement” of the judgment with its object;
3. That Aristotle, the father of logic, not only has assigned truth to the judgments as it primordial locus but has set going the definition of “truth” as “agreement.”¹⁷

Heidegger then introduces the following example: someone affirms (with his back to the wall) that “the picture on the wall is hanging askew”:

This assertion demonstrates itself when the man who makes it, turns around and perceive the picture hanging askew on the wall. What gets demonstrated in this demonstration? What is the meaning of “confirming” such an assertion? [...] Asserting is a way of Being towards the Thing itself that is. Nothing else than *that* this Thing *is the* very entity which one has in mind in one’s assertion. [...] To say that an assertion “is true” signifies that it uncovers the entity as it is in itself. Such an assertion asserts, points out, ‘lets’ the entity ‘be seen’ in its

¹⁵ The term “pragma” here, is my own term.

¹⁶ Heidegger, Martin. *Being and Time*; p. 256.

¹⁷ Heidegger, Martin. *Op.cit*; p. 257.

uncoveredness.¹⁸

For Heidegger the confirmation of the proposition “the picture on the wall is hanging askew” depends on the direct awareness of the thing itself and not on the awareness of the proposition. The picture shows itself in its *howness* as *pragma* by sensuous experience and not to judgment.

We can see how Heidegger complemented Husserl’s noema-noesis distinction of Husserl with an anti-idealist epistemology in which “to know something” is ontical (knowledge about Being). Epistemology for Heidegger became subordinated to ontology. In other words, to know the true value of some proposition (a noetic content about the truthfulness of something) depends on the ontological status of the noema asserted by the proposition. What Heidegger is affirming here, is that the act of praxis, the pragmatic act of becoming the noema itself, in which the mind engages in action, is an act of *uncovering* the Being-in-the-World of the noema, its *howness*:

Dasein, as constituted by disclosedness, is essential in the truth. Disclosedness is a kind of Being which is essential to Dasein. *‘There is’ truth only in so far as Dasein is and so long as Dasein is.* Entities are uncovered only *when* Dasein is; and only as long as Dasein *is*, are they disclosed. Newton’s laws, the principle of contradiction, any truth whatever –these are truths only as long as Dasein *is*. Before there was any Dasein, there was no truth; nor will be any after Dasein is no more. For in such a case truth and disclosedness, uncovering and uncoveredness, *cannot* be. Before Newton’s laws were discovered, they were not ‘true’; it does not follow they were false, or even that they would become false if ontically no discoveredness were any longer possible. Just as little does this ‘restriction’ imply that the Being-true of ‘truths’ has in any way being diminished. To say that before Newton his laws were neither true nor false, cannot signify that before him there were no such entities as have ben uncovered and pointed out by those laws. Through Newton the laws become true and with them, entities became accessible in themselves to Dasein.¹⁹

The uncovered became then, a “presentation”, something which is posited to the mind and takes it over, conquers it, eclipses consciousness and becomes pure praxis. This radicalization of phenomenology into anthropology can be traced back to Marx who is, in fact, the first to clearly define “praxis” when he in the 11th thesis on Feuerbach wrote:

The philosophers have only *interpreted* the world, in various ways; the point is to *change* it.²⁰

However, Heidegger is far from seeking for changes, and therefore his phenomenology is still contemplative, much more so than psychoanalysis and Marxism.

The world is aware of us: Merleau-Ponty and postmodern vitalism

Maurice Merleau-Ponty complemented Heidegger’s praxical phenomenology and simultaneously gave the Freudian Unconscious the “place” it assumed but never specified: the human body and its surroundings. In this sense is Merleau-Ponty inaugurating a kind of modern “animism”—maybe better called “autonomism”—according to which the world and the body become the Flesh, and this “enfleshment” has no limits:

Thus every object is the mirror of all others. When I look at the lamp on my table, I attribute to it not only the qualities visible from where I am, but also those which the chimney, the walls, the table can ‘see’; but back of my lamp is nothing but the face which it ‘shows’ to the

¹⁸ Heidegger, Martin. Op.cit;; p. 260-261.

¹⁹ Heidegger, Martin. *Being and Time*, p. 269.

²⁰ *Ibid.*

chimney. I can therefore see an object in so far as objects form a system or a world, and in so far as each one treats the others round it as spectators of its hidden aspects and as guarantee of the permanence of those aspects. Any seeing of an object by me is instantaneously reiterated among all those objects in the world which are apprehended as co-existent, because each of them is all that the others 'see' of it. Our previous formula must therefore be modified; the house itself is not the house seen from nowhere, but the house seen from everywhere.²¹

For Merleau-Ponty, intentionality is embodied as well as every aspect of the soul is embodied. Praxis for Merleau-Ponty is anchored in the concreteness of the human body. Nevertheless, that the things of the world are participating in perception, as if the body were distributed in pieces around in the world, distribute intentionality around us, and animates the world as parts of our bodies' powers. While for Descartes it was the cogito that installed existence, for Merleau-Ponty it is the body that does so. Otherwise, the situation is very similar. Following Merleau-Ponty I could affirm: "I have a body, therefore I am."

The analysis of bodily space has led us to results which may be generalized. I notice for the first time, with regard to our own body, what is true of all perceived things: that the perception of space and the perception of the thing, the spatiality of the thing and its being as a thing are not two distinct problems.²²

Therefore, for Merleau-Ponty, hammering is possible not only because the hammer is ready-to-hand, but also because the nail, and the wall, and the hammer are extensions of the body. The wall is there because it expects to be nailed, and the nail is there to be beaten by the hammer, which is there to be taken by the hand. The world is plenty of open paths that the body can choose to follow.

The embodiment of the soul is also the *enfleshment* of the world which is no longer only "material" or "physic" but *living*. I believe that after Merleau-Ponty's work we can again talk about "the soul" in general, also referring to the world as *enfleshment*. Therefore, I will use the term "Flesh" meaning the soul of a post-embodiment era. This has importance for the philosophy of technology and the relationship between humans and machines. From the Second World War and after, and especially with the development of digital technologies, many philosophical projects have been aimed to prove the "artificial life" of machines. The echoes have been as important in the field of knowledge in which artificial intelligence played a roll outside mathematics and technology, inspiring to a philosophy of artificiality and to a *postmodern vitalism* that still is going on.

The roots to of artificial intelligence and postmodern vitalism, is found in the work of the English mathematician Alan Matheson Turing. During the 1950's he publishes "Computing Machinery and Intelligence" in the philosophy magazine *Mind*. In this article, his thoughts transcended the limited circles of the specialists, and became an important issue in the foundation of a new Philosophy of Mind. Turing's ideas lead also a new heuristics for technology; that I will call *artificialism* and which could not be thought without a clear idea about embodiment. I call postmodern vitalism the position that defends the possibility of creating life forms from the application of intelligent programs in computational environments. The new variants of Leibnitz's monads were robots and androids. The differences from traditional vitalism are remarkable; when the traditional vitalism saw in the machines the opposite of life, postmodern vitalism see in machines the platform of life forms. After the Second World War the needs of a new ground for a philosophy of life grew in direct proportion to the astonishing scientific discoveries and outstanding technological achievements. There were many different disciplines which contributed to this development and many of them changed decisively themselves in

²¹ Merleau-Ponty, Maurice. *Phenomenology of Perception*; p.79.

²² Merleau-Ponty; Maurice *Phenomenology of Perception*; p.171.

combinations with others to create new interdisciplinary results. Some of those decisive sciences were mathematics, electronics, and neuronal physiology. Some very important results in the field of Cognition were the works of Chilean scientists Humberto Maturana and Francisco Varela. Digital machines incorporate the ideas of complexity and autopoiesis to the eidicity of the machine which lost in part its clock-like character and became more like an organism.

Don Ihde wrote about Merleau-Ponty's concept of embodiment that bodily intentionality "extends through the artefact, into the environing world in a unique technological mediation." And that "my active, intentional bodily movement may also *incorporate*, include into its very primary experience, a *technology*:"²³ Everybody has experienced how in the action of the driving of a car or during cycling tour, the vehicle becomes an extension of our body. This merging of the living body with the non-living creates a hybrid that enlarges our body's powers.

For Merleau-Ponty and his philosophical context, praxical phenomena—as Brentano's mental phenomena—consist on acts *directed throughout an object*, but not as pure *destination*, but as an act of *animation*. For Merleau-Ponty, to think pragmatically is not only to pointing on an object, *but to act right through it, giving life to it*, transforming the noema into a *pragma*.

Writing as technology

Derrida is critical to Husserl and phenomenology. According to Derrida, Husserl's things-in-themselves cannot be anything else than symbolic presentations. He writes (referring to Peirce): "From the moment that there is meaning, there is nothing but signs. We think only in signs."²⁴ Derrida could be described as "a philosopher of writing", or "a writing-philosopher." Of all linguistic manifestations, the study of writing is his philosophical inspiration. His interest in the written word is based upon the particular characteristics of writing; it is both fixated on an objective ground, and at the same time open for interpretation. A text can never be considered to be completely or fully interpreted. It is always open for further interpretation. However, because any possibility to the fixation of meaning as essences is vanishing, everything becomes processes of procedures, everything becomes technological.

Jacques Derrida denies the possibility of the "phenomenon"; he is the phenomenologist of the *trace*, which is the ontological state of a world in which everything is blurred. Derrida includes the critique of Husserl and phenomenology in his critique of the philosophy of the West. We could say that Derrida, in this sense, seeks to move the problems of Western philosophy one step further than Husserl. Husserl created the "phenomenon" by putting the real "in parentheses". Derrida, on the other hand, puts the phenomenon "in parentheses" in order to create the *trace*, the characterizer of ontological differences. Gary Gutting explains:

"Trace" is a term that emerges from reflection on the way that Zeno's old paradox of the arrow provides a simple but helpful example of thinking in terms of the trace. [...]. Regarding the arrow in 'motion as a mere succession of self-contained presences fails to yield the concrete phenomenon of a moving arrow. To avoid paradox, we must insinuate into each "point" of motion essential reference to past and future points that are not present but somehow leave their traces.²⁵

Derrida himself defines "trace" in the following passage:

Of course, the word trace doesn't mean anything by itself. But the model of imprinting, mould, etc., of *τύπος*, is one particular mode of determining the trace-and it is not mine, I would say. On the contrary, I am trying to deconstruct this model and even the model of the

²³ Don Ihde. *The Peking Lectures*. Chapter Two.

²⁴ Derrida, Jacques. *Of Grammatology*, 1998; p. 50.

²⁵ Gutting, Gary. *French Philosophy in the Twentieth Century*. Cambridge University Press, 2001, p. 301-302.

vestige, the footprint in the sand. I would prefer something which is neither present nor absent: I would prefer ashes as the better paradigm for what I call the trace—something which erases itself totally, radically, while presenting itself.²⁶

According to Derrida, the world consists of neither subject nor object relations, nor of relations between the noema and noesis; everything consist only of differences that hardly leave any impressions. The world consists of traces because the *contamination* between the inside with outside, the absolute impossibility of being neither subjective nor objective. Because of contamination, for Derrida everything is blurred and trying to avoid this blurriness is futile. Derrida exemplified the blurriness as a consequence of contagion referring to Heidegger's attempt to distinguish technology *as phenomena* from the *essence of technology*:

A: Heidegger avers that the essence of technique is nothing technological: his thinking of technique as such and as an essence tries in a classically philosophical manner to shelter the thought and language of essence from contamination.

B. Yet can anything in language and in thought be sheltered absolutely from technicity? In the very will to protect oneself against “x” one is more exposed to the danger of reproducing x” than when one tries to think contamination.

C. Contamination, a contagion born of contact and a kind of touching, foils every strategy of protection; it puts at risk the central theme of Heidegger's thinking—that of the ontological difference.²⁷

The consequence is that the boundaries between what it is technological and what it is not becomes blurred. Asked to be more precise about its comments on contamination in Heidegger's thought about technology, Derrida answered that he do not want to “technologize everything”:

No. I was saying that the limit between what is technical and what is not technical is not safe, even with the animals, and even with the very first structures of experience. So, it is not a way of saying, well, everything is instrumental. No: this is all meant just to problematize the concept of instrumentality.²⁸

Derrida observes that the distinction between modern and obsolete technology that characterized Heidegger's philosophy of technology is derived from the futile attempt to distinguish technologies that can be *touched* in a human sense from those that cannot:

Of course, what happens with modern technology is that it deprives us of the possibility of touching. But what scares Heidegger is not the fact that we cannot touch anymore; it is not that he would like to protect the possibility of touching; but it is the contamination between touching and non-touching, between the authentic human way of touching, the way a Dasein touches, and another way of touching-not-touching. That is a contamination which he would like to avoid, contamination between touching in the human sense and touching in the nonhuman sense, technical, animal, or whatever. That's why I insisted on the strange combination between contact, a kind of contact, and another kind of contact or non-contact. Whereas he would like to draw a limit between an authentic touching and an inauthentic touching. And that is what leaves me perplexed. I think there is a contamination; there has always been a contamination between touching and not touching.²⁹

Jacques Derrida includes the question of writing as a technologic-like phenomenon. According to Derrida the logos of the West is characterized by the metaphysics of presence,

²⁶ Derrida, Jacques, “On Reading Heidegger”, *Research in Phenomenology*, 17: 1987; p.171.

²⁷ Derrida, Jacques, “On Reading Heidegger”, *Research in Phenomenology*, 17: 1987; p.172-173.

²⁸ Derrida, Jacques, *Op. cit.*; p.182.

²⁹ Derrida, Jacques, *Op. cit.*; p.177-178.

which arises because of the primacy of phonology over writing. In this sense deconstructing logos, favouring writing over speech, will also favour technological praxis over the pure presence of direct communication.

Technics in the service of language: I am not invoking a general essence of technics which would be already familiar to us and would help us in understanding the narrow and historically determined concept of writing as an example. I believe on the contrary that a certain sort of question about the meaning and origin of writing precedes or at least merges with, a certain type of question about the meaning and origin of technics. That is why the notion of technique can never simply clarify the notion of writing. It is therefore as if what I call language could have been in its origin and in its end only a moment, an essential but determined mode, a phenomenon, an aspect, a species of writing.³⁰

It seems that the destiny of technology is connected to the destiny of writing, and if writing has become more important the last centuries the same happened to technology. Because speech does not need writing to exist, it is possible to understand writing as a technological development the consequences of which we have just begun to understand. Derrida identifies as writing the whole of objective traces of thought, the perdurable manifestation of action in general:

Now I tend to say “writing” for all that and more: to designate not only the physical gestures of literal pictographic or ideographic inscription, but also the totality of what makes it possible; and also, beyond the signifying face, the signified face itself. And thus I say “writing” for all that gives rise to an inscription in general, whether it is literal or not and even if what it distributes in space is alien to the order of the voice: cinematography, choreography, of course, but also pictorial, musical, sculptural “writing.” One might also speak of athletic writing, and with even greater certainty of military or political writing in view of the techniques that govern those domains today. All this to describe not only the system of notation secondarily connected with these activities but the essence and the content of these activities themselves. It is also in this sense that the contemporary biologist speaks of writing and program in relation to the most elementary processes of information within the living cell. And, finally, whether it has essential limits or not, the entire field covered by the cybernetic program will be the field of writing. If the theory of cybernetics is by itself to oust all metaphysical concepts—including the concepts of soul, of life, of value, of choice, of memory—which until recently served to separate the machine from man, it must conserve the notion of writing, trace, *grammè* [writing mark], or grapheme, until its own historic-metaphysical character is also exposed.³¹

As a strong example of the natural separation of writing as a technology Derrida refers to the mathematical language which being eidetic is not phonological:

I have already alluded to theoretical mathematics; its writing—whether understood as a sensible *graphie* [manner of writing] (and that already presupposes an identity, therefore an ideality, of its form, which in principle renders absurd the so easily admitted notion of the “sensible signifier”), or understood as the ideal synthesis of signifiers or a trace the passage of the one to the other, has never been absolutely linked with a phonetic production.

The most powerful idea about *anti-logos* as pure writing is the rise of Artificial Intelligence. As we have already said, the origins of the idea of an artificial intelligence, is found in the *artificialism* of Alan Matheson Turing. In those historical pages, Turing asked, “can a machine

³⁰ Derrida, Jacques. *Of Grammatology*; p. 8.

³¹ Derrida, Jacques. *Ibid*; p. 9.

think?” His answer was affirmative, arriving to it through a series of pragmatic substitutions to the initial question. According to Turing, the question “Can machines think?” could be put as follows: “Is it possible to distinguish a machine from a person in the moment of “non-face-to-face” communication? Turing answers negatively to this question and assure that with the progress of the programming technique will be increasingly difficult to distinguish between a machine and a person in the moment of the communication. We can see that Turing identifies mechanical communication, with human communication and reduced speech to writing language. His question can be translated to a post-Derridean time as follows: “Can a *programmer* be able to condense the rules of human presence in communication in such a way that these could be expressed by mechanical (writing) procedures? The answer is the whole modern digital industry in which writing language is the dominating form of communication and the technological support of speech in any form.

Phenomenology and Pragmatism

Contemporary to Brentano, in a very different context, Charles Sanders Peirce presented his idea of pragmatism in “How to make our ideas clear” from 1878. In this publication Peirce defines pragmatism as:

Our idea of anything is our idea of its sensible effects; and if we fancy that we have any other we deceive ourselves, and mistake a mere sensation accompanying the thought for a part of the thought itself. It is absurd to say that thought has any meaning unrelated to its only function. It is foolish for Catholics and Protestants to fancy themselves in disagreement about the elements of the sacrament, if they agree in regard to all their sensible effects, here or hereafter. It appears, then, that the rule for attaining the third grade of clearness of apprehension is as follows: Consider what effects, which might conceivably have practical bearings, we conceive the object of our conception to have. Then, our conception of these effects is the whole of our conception of the object.³²

In a lecture that William James gave at Berkeley in 1898, entitled “Philosophical Conceptions and Practical Results,” he resumed the “principle of pragmatism” as follows: “To attain perfect clearness in our thoughts of an object...we need only consider what effects of a conceivably practical kind the object, may involve [...].³³”

Putting Brentano and the different variants of Pragmatism together, it is possible to say that the act of thought *is directed* through an object, and every *intentional-object has some praxical consequence*. If Brentano engaged thought into an “act”, presenting it in movement through its object, pragmatism, studied the consequences of this movement on other objects. It is as if pragmatism seeks to complete the intentional “inexistence” of the act of thinking with its transcendental consequences on the lifeworld. This bridge between *thinking, action and transcendence* is characteristic for the fundamental metaphysics of the contemporary philosophy of technology, and could be described as the beginnings of a general *intentionalization* and *pragmatisation* of philosophy.

The influence of Pragmatism has been relevant to contemporary Post-phenomenology in two very different ways: first, in the election of the study object e.g. studies of labour and of technology; and second, in the way in which these studies has been related to metaphysics. Pragmatism is critical to the approach to phenomena that characterized traditional metaphysical studies. However, in its rejection of metaphysics, Pragmatism committed the same fault that the

³² "How to Make Our Ideas Clear", Popular Science Monthly, v. 12, January 1878: pp. 286–302. *Writings of Charles Sanders Peirce, a Chronological Edition*, Volume 3, p. 257, Indiana University Press, 1986.

³³ *Pragmatism: a contemporary reader* / [edited by] Russell B. Goodman. Routledge, 1995.

positivists had. Trying to not do metaphysics, Pragmatism did metaphysics without being aware of it, “unconsciously”. On the contrary, both Husserl and Heidegger “redesigned” metaphysics into “Phenomenology” and “Ontology” respectively, leaving behind the traditional eidetic analysis of previous philosophy and renewing metaphysics as *thought in action*. Anyhow, the “unconscious” complementation of Phenomenology with Pragmatism is well documented:

Indeed, it is historically attested that Husserl read the *Principles* and perhaps the critical 35 pages of the summary elaborated by Marty. Therefore, James seems to have exerted a certain influence on Husserlian work. Even before the flourishing of phenomenology, it is likely that the direction of Husserl’s analysis toward what he called the “phenomenological” was affected by the *Principles*. [...] In 1891/92 Husserl took a class on psychology and on that occasion he read the *Principles* for the first time. That probably came about as a result of advice from Stumpf, who encountered James when he was in Europe in 1882. Though Husserl admitted being able to understand just a portion of the volume, he admired the audacity and originality of Jamesian analysis. In May 1894 he came back to *Principles*, while he was working on his logic and its elementary concepts and he praised the Jamesian effort of “de-psychologizing psychology”. At that time he had planned to publish a series of articles in the *Philosophische Monatshefte*, but he published only the first and decided to wait to see what James had done, before publishing the others.³⁴

The philosophy of technology originates in connection to the Industrial Revolution and it is possible to see Karl Marx and Ernst Kapp as the pioneers of the field. However, as a proper philosophical discipline, it was born during the first years of the 20th century with the work of philosophers such as Karl Jaspers, José Ortega y Gasset and especially Martin Heidegger. What is characteristic for this first wave of philosophical studies is the general pessimism regarding the development of new technologies and an ethical approach to technology which has been dominant until our days. Among all these earlier studies, only the work of Heidegger have survived the passing of time; his remarks on technology, especially those he made in *Being and Time* are still inspiring to new insights. The particular history of Heidegger, his enrolment with Nazism and his pessimism with respect to the developments of the technology of his time, is in clear contrast to his deep phenomenological insights and his originality. Heidegger was a very complex person; deep enrooted in the “reactionary modernism” of his time, he could anticipate metaphysical problems and solutions that many years after his death are still stimulating.

The philosophy of technology of today is almost an American enterprise with the names of Albert Borgmann, Hubert Dreyfus, Andrew Freenberg, Donna Haraway, Langdom Winner and Don Ihde. From our point of view, the work of Ihde is the most important for the future of phenomenology in general. Ihde incorporates pragmatism to phenomenology and hermeneutics producing a hybrid that moved the frontiers of the philosophy of technology beyond the work of Heidegger. As we have seen, pragmatism and phenomenology had developed side by side, during the same period of time and discussing many common aspects. We know that Husserl knew about the work of James and that he certainly was influenced by it. However, is not the personal contact between these individuals, that which makes phenomenology and pragmatism closer partners. It is the general intellectual atmosphere in which industrial engineering and industrial design changed the agenda of philosophy. This crude reality is still noticeable in contemporary academic life, increasingly pressed from outside to connect metaphysics to practical ends.

The alliance between phenomenology and pragmatism answers also to a general tendency in Western thought in general which, departing from Kant, has tried to find a solution that makes the creation of a unified field of sciences possible; a unified field in which the “human sciences” could be incorporated. This unwritten project implied a critical standpoint against the Cartesian heritage; against both rationalism and empiricism. The results of these efforts are condensed in

³⁴ Susi Ferrarello. “On the Rationality of Will in James and Husserl.” *European Journal of Pragmatism and American Philosophy*, Associazione Pragma, 2009.

Husserl's *Lifeworld*, Heidegger's *Dasein*, Merleau-Ponty's *Flesh* and Derrida's *Trace*.

In connection to these achievements, pragmatists have contributed to the unification of the field of philosophy with the development of concepts as pragmacity, usability and heuristics, all of them directly connected to the study of action, labour and technology. The American turn to Phenomenology and Continental thought in general was possible because of the exhaustion of analytic philosophy. To understand how contemporary pragmatism connect to the "continental tradition" consider the following argument:

"Each age," Emerson stated, "must write its own books." Pragmatism may be, as William James suggested, "a new name for some old ways of thinking," found as much in Mill or Aristotle as in James or Peirce, but it nevertheless waxes and wanes in response to specific cultural and intellectual circumstances. Why does this age write its own pragmatic books? How is it that a philosophy so vibrant and promising at the turn of the twentieth century and so depleted at midcentury should revive now at century's end: after positivism, phenomenology, logical analysis, naturalized epistemology, and deconstruction? To help answer these questions, consider the alternative reading of twentieth century philosophy offered by Hilary Putnam, a leading philosopher of logic, language, and mind who has taken a new turn towards pragmatism in his own work. According to Putnam, the first half of the twentieth century saw a series of attempts to construct metaphysical systems and the second, a series of attempts to overcome them. The systems of Carnap, Russell, and the early Wittgenstein were put forward as attacks on metaphysics, yet they were really, Putnam writes, "among the most ingenious, profound, and technically brilliant constructions of metaphysical systems ever achieved." The "analytic philosophy" that these philosophers developed and that continued even as their original systems were overcome stressing formal logic, careful attention to language, analysis, and argument more than overarching vision now dominates the American and world philosophical scenes. Yet, Putnam writes, "at the very moment when analytic philosophy is recognized as the 'dominant movement' in world philosophy, it has come to the end of its own project the dead end, not the completion."³⁵

To this integration between phenomenology and pragmatism Don Ihde gave the name "post-phenomenology". Let us see how Ihde sees this:

Phenomenology in Europe and Pragmatism in America were historically simultaneously born. Both were new, radical philosophies which placed *experience* in a central role for analysis. Pragmatism was first called that by William James (1898) who credited it to Charles Sanders Peirce; William James also was an early major influence upon Husserl. But pragmatism was brought to prominence primarily by John Dewey. Note that Dewey and Husserl were both born in 1859, and although Dewey lived longer than Husserl, their philosophical developments were chronologically parallel. But also note that their birth year was also that of the publication of Darwin's *Origins of Species*. Or, since last year was the centennial of Einstein's golden year, 1905, if we look at Dewey in 1905, we find him at Columbia University, already famous in the philosophy of education after founding his earlier experimental or laboratory school at the University of Chicago. And if we look at Husserl in 1905, we find him giving his internal time lectures. In terms of the historical philosophical context at the turn of the century there were some similarities, but also nuanced differences between the pragmatists and Husserl's phenomenology. This can be subtly illustrated in the term, pragmatism, itself. Dewey himself, in his "The Development of American Pragmatism," says, "The term 'pragmatic,' contrary to the opinion of those who regard pragmatism as an exclusively American conception, was suggested to [Peirce] by the study of Kant...in the *Metaphysics of Morals* Kant established a distinction between *pragmatic* and the *practical*. [Practical] applies to the moral laws which Kant regards as *a priori*...whereas

³⁵ *Pragmatism: a contemporary reader* [edited by] Russell B. Goodman. Routledge, 1995; p. 1-2.

[Pragmatic] applies to the rules of art and technique which are *based on experience and are applicable to experience*.³⁶ Now, as we know, Descartes and Kant also play major roles in Husserl's development of phenomenology—but the roles they play in Husserl are those of an *epistemological* Descartes and Kant, whereas it is the *moral*, but also a *praxical* Kant who is used by Peirce! The pragmatic emphasis is upon *practice*, not upon *presentation*. This move to praxis and away from presentation later repeats itself in virtually all the late 20th century styles of science interpretation!³⁷

Ihde's point here is to show how Husserl became prisoner of the Cartesian-Kantian epistemology based on the subject-object dichotomy, while the pragmatists could avoid this problem because they departure from the Kantian praxical terminology. According to Ihde, Dewey's pragmatism favoured the dichotomy organism-environment over the traditional subject-object. This Deweyan approach, which is experimental as well, is much more close to the last Husserl's Lifeworld than to Husserl's early work. On the other hand, the work of Husserl “developed a style of rigorous analysis of experience which was potentially experimental and thus relevant to pragmatism.”³⁸

Hans Achterhuis—who found an “empirical turn” in the new generation of the philosophers of science in America—emphasized that this generation “opened the black box of technological developments.”

About two decades ago, dissatisfaction with the existing, classical philosophical approach to technology among those who studied new developments in technological culture as well as the design stages of new technologies led to an empirical turn that might roughly be characterized as constructivist. This empirical turn was broader and more diverse than the one that had taken place earlier in the philosophy of science, especially as inspired by the work of Thomas Kuhn, but shared a number of common features with it. First, this new generation of thinkers opened the black box of technological developments. Instead of treating technological artifacts as givens, they analyzed their concrete development and formation, a process in which many different actors become implicated. In place of describing technology as autonomous, they brought to light the many social forces that act upon it. Second, just as the earlier, Kuhn-inspired philosophers of science refused to treat ‘science’ as monolithic, but found that it needed to be broken up into many different sciences each of which needed to be independently analyzed, so the new philosophers of technology found the same had to be done with ‘technology.’ Third, just as the earlier philosophers of science found that they had to speak of the co-evolution of science and society, so the new, more empirically oriented philosophers of technology began to speak of the co-evolution of technology and society.³⁹

Two of Achterhuis' observations are very relevant to specifically describe the work of Ihde: the first is Ihde's successfulness in just “opening the black box of technologies” and the second is his obvious connection to the socio-historical tradition deriving from Thomas Kuhn. It is obvious that Ihde's interest in science increased with time as a natural consequence of his studies on technology. What is then Post-phenomenology? Ihde's words:

Postphenomenology is a modified, a hybrid phenomenology. On the one side it recognizes the role of pragmatism in the overcoming of early modern epistemology and metaphysics. It sees in classical pragmatism a way to avoid the problems and misunderstandings of phenomenology as a subjectivist philosophy, as sometimes taken as anti-scientific, and as

³⁶ *John Dewey in The Philosophy of John Dewey*, edited by John J. McDermott (New York: Putnam Publishers, 1977), p.42. (Ihde's note).

³⁷ Don Ihde. “Introduction to Postphenomenology and Technoscience”. *The Peking Lectures*. “First step: Pragmatism and Phenomenology; 2006.

³⁸ Don Ihde. *The Peking Lectures*. “Second step: Pragmatism and Phenomenology.

³⁹ Hans Achterhuis, *American Philosophy of Technology: The Empirical Turn* (Bloomington: Indiana University Press, 2001), p. 6-8.

locked into idealism or solipsism. Pragmatism has never been thought of this way and I regard this as a positive feature. On the other side, it sees in the history of phenomenology a development of a rigorous style of analysis through the use of variational theory, the deeper phenomenological understanding of embodiment and human active bodily perception, and a dynamic understanding of a lifeworld, as a fruitful enrichment of pragmatism. And, finally, with the emergence of philosophy of technology, it finds a way to probe and analyze the role of technologies in social, personal and cultural life which it undertakes by means of concrete—empirical—studies of technologies in the plural. This, then, is a minimal outline of what constitutes *postphenomenology*.⁴⁰

Multistability and Ihde's criticism to Heidegger

The work of Don Ihde is deeply rooted in the phenomenological tradition with a hermeneutic perspective; Ihde's first book was a study of the work of Paul Ricoeur. It is possible to see through his work the heritage of American pragmatism as well. Ihde is a very good example of the synthesis of perspectives in contemporary philosophy. Writing in a very readable style and showing a didactic concern, his books are short and easy to understand. However, that does not mean that Ihde's ideas are superficial. Some aspects of Ihde's work signify a step forward from the work of Heidegger, and we will see that this connection to Heidegger's heritage concerns Ihde in many respects. Don Ihde discovered an important particularity in the ontology of technologies which he named *multistability*. Until this discovery, philosophy of technology was bounded fast to the already "traditional" ideas of Heidegger. Ihde explains multistability as the phenomena in which the "same technology takes quite different shapes in different contexts."⁴¹ Ihde studied different forms of firing an arrow and established that "each of these variations, however, serve the same purpose, to fire an arrow. But in a new context if one holds the bow in a horizontal position instead, and 'plucks' the bowstring—we are transforming the bow from its usual use, into a new use, as a sort of stringed instrument!" Ihde then describes what happens in the mind of the archer: "Every archer could hear the bow string 'twang' when fired. Could it then be 'played'?" Ihde then concluded: "Thus the 'same technology'—a bow—apparently fits two radically different trajectories, one of them musical."⁴²

Multistability is connected to Husserl's methods of *invariances* of phenomenological presentations, which, in their turn, are naturally associated to the concept of *essences*. Ihde breaks with this Husserlian tradition making the world *unstable* and *un-essential*. Ihde showed that any technological device is open to the world of pragmatic demands, anticipating a theory of evolution of artefacts and machines governed by the law of the "survival of the fittest". "Multistability" for Ihde is a positive concept in his metaphysics of technology that is neutral to ethical considerations. Ihde's work is concerned with ethical aspects of technology but he does not make his ethical considerations a part of his metaphysical studies. In this sense, Ihde's work is almost unique and signifies a clear cut off from the Heideggerian heritage.

Ihde movement forward from Heidegger is built on some critical standpoints regarding Heidegger's work; the first is Heidegger's reactionary modernism which moved Ihde to the following comments:

A century after his birth, two very contrary statements can be made concerning Martin Heidegger: First, in a significant sense, he is surely one of the most important founders of the philosophy of technology. His insights into the structures and functions of technology remain deep and suggestive. Second, we all also know that he joined the National Socialist

⁴⁰ Don Ihde. *The Peking Lectures*. "What is postphenomenology?"

⁴¹ "Technologies—Musics—Embodiments". Don Ihde. Janus Head: http://www.janushead.org/_/10-1/ p. 13.

⁴² Don Ihde; "Technologies—Musics—Embodiments"; Ibid.

German Workers' Party and remained with it through the war. His associations with the movement, seen today as one of the most destructive applications of modern technology, are equally deeply disturbing. My question is this: Is there something at the very heart of Heidegger's thought that makes both of these contraries possible?⁴³ The answer is Heidegger's "Wagnerian," and "Nietzschean" romanticism.⁴⁴

Ihde's second critical standpoint is Heidegger's preference of old technologies against new ones and his preferences for tools (simple technologies) over machines (complex technologies).

To this point, it should be clear that the romantic thesis, as I shall call it, pervades Heidegger's choices of "good" and "bad" technologies. But in what does it consist? The first element, I claim, is a preference for what I call embodiment relations. Heidegger prefers, likes, those technologies that express straight-forward bodily, perceptual relations with the environment. [...] As we saw with the typewriter, for Heidegger somehow there is less "hand" in writing with a typewriter than presumably that which is "hand-written" with a pen.⁴⁵

The third of Ihde's criticism has to do with Heidegger's "negative hermeneutics", in which Heidegger studies the life-world (Dasein) towards "broken technologies." In his recently published book *Heidegger's Technologies* Ihde wrote:

Positively, Heidegger shows in the hammer example that technologies in use are not objects as such; they "withdraw" in use and become partially transparent means by which humans relate to an environment. Here is a good critique of any simplistic and objectivistic account of technologies as simple objects. Rather, technologies are contextual, or field involved; the hammer "is" what it is in reference to the context of nails, project, and so on. It belongs to a reference system that always includes more than a mere hammer. Thus, while the hammer is always "thingly," it is never a mere thing and is, in use, transformed into a world-related and world-revealing way in which humans are involved with their environments. All of this and more is the source of the Heideggerian suggestivity for philosophy of technology. But there is also a negative side to the analysis. In *Being and Time*, the context is "lit up" through technological breakdown. It is when the hammer is broken or missing that its involvements are shown. The fullness of the project and the objectness of the hammer get shown when it is not functioning. I claim that here lies an early clue to a certain negativity that pervades the Heideggerian corpus and that blinds the analysis both to a possible appreciation of human-technology relations other than embodiment ones and to the features that, in fact, unite modern technologies to traditional ones. In *Being and Time*, it is hard to conceive of a positive relation to a piece of equipment, a technology, other than as that through which Dasein experiences its environment either in embodiment or with transparent referentiality.⁴⁶

In his critical stance, Ihde associates Heidegger's negative hermeneutics with his conservative ethical considerations against non-embodied technologies. I think that Ihde has right in his criticism of Heidegger's reactionary modernism, and of Heidegger's romantic views of technology and society. I agree with Ihde and think that Heidegger shows an incomprehensible perplexity about non-embodied technologies. However, I think that Ihde is wrong identifying these negative aspects with Heidegger's "negative hermeneutics" which in fact is a kind of *phenomenological reduction* akin to Sartre's "nihilation"⁴⁷, Adorno's "negative dialectic" and to Derrida's concept of "deconstruction".

⁴³ Don Ihde. *Heidegger's Technologies*; 2010, p.74.

⁴⁴ Don Ihde; *Op.cit*; p. 75.

⁴⁵ Don Ihde; *Op.cit*; p. 78.

⁴⁶ Don Ihde; *Op.cit*; p. 78-79.

⁴⁷ Sartre, Jean-Paul. *Being and Nothingness. An essay on phenomenological ontology*. Routledge, London and New York, 2010.

Nevertheless, Ihde's criticism seems to contradict the importance that he attributed to this negative hermeneutics in another text; in his *Peking Lectures* can be read:

But the use I wish to make of this, is to show how this phenomenon plays an anticipatory role in Heidegger's famous *inversion of the ontological role of the relationship between science and technology*. This is my second example of a lasting influence of Heidegger upon contemporary philosophy of technology. In the early analysis, once a tool malfunctions or breaks, it is an occasion for it to become *conspicuous*. Becoming conspicuous is an occasion for it to be *decontextualized*—at least from its work project. And decontextualized, it may become an *object of examination, present-at-hand*, in short, a 'scientific object.' In this sense, a scientific examination arises out of, and is dependent upon a previous or *ontologically prior* praxis context.⁴⁸

It is very possible that Heidegger, Adorno and Derrida have been inspired by conservative ethical values, but this is absolutely independent of the value of the methodology as such. About his "negative dialectics" Adorno wrote:

Negative Dialectics is a phrase that flouts tradition. As early as Plato, dialectics meant to achieve something positive by means of negation; the thought figure of a "negation of negation" later became the succinct term. This book seeks to free dialectics from such affirmative traits without reducing its determinacy. The unfoldment of the paradoxical title is one of its aims.⁴⁹

Doing metaphysics for Adorno was to find the historical balance between ideas and praxis in contemporaneity, reinforcing the Marxian primacy of the social reality over thought.

As the latest aesthetic discussions feature the "anti-drama" and the "anti-hero," this *Negative Dialectics* in which all aesthetic topics are shunned might be called an "anti-system."⁵⁰

Jacques Derrida follows Heidegger's negative approach when he chooses the term "deconstruction". In "Letter to a Japanese Friend" from July 1983, Jacques Derrida wrote:

When I chose this word, or when it imposed itself upon me -I think it was in Of Grammatology-I little thought it would be credited with such a central role in the discourse that interested me at the time. Among other things I wished to translate and adapt to my own ends the Heideggerian word *Destruktion* or *Abbau*. Each signified in this context an operation bearing on the structure or traditional architecture of the fundamental concepts of ontology or of Western metaphysics. But in French "destruction" too obviously implied annihilation or a negative reduction much closer perhaps to Nietzschean "demolition" than to the Heideggerian interpretation or to the type of reading that I proposed. So I ruled that out. I remember having looked to see if the word "deconstruction" (which came to me it seemed quite spontaneously) was good French. I found it in the *Littré*: The grammatical, linguistic, or rhetorical senses [*portées*] were found bound up with a "mechanical" sense [*portée "machinique"*]. This association appeared very fortunate and fortunately adapted to what I wanted at least to suggest. Perhaps I could cite some of the entries from the *Littré*. "*Déconstruction*: action of deconstructing. Grammatical term. Disarranging the construction of words in a sentence. 'Of deconstruction, common way of saying construction,' Lemare, *De la manière d'apprendre les langues*, chap. 17, in *Cours de langue Latine. Déconstruire*. 1. To disassemble the parts of a whole. To deconstruct a machine to trans-port it elsewhere. 2. Grammatical term ... To deconstruct verse, rendering it, by the suppression of meter, similar to prose. Absolutely. (In the system of pre-notional sentences, one also starts with translation and one of its advantages is never needing to deconstruct,' Lemare, *ibid.*, 3. Se *déconstruire* [to deconstruct it-self I ... to lose its

⁴⁸ Don Ihde. *The Peking Lectures*. Chapter Two.

⁴⁹ Adorno, Theodor W. *Negative Dialectics*. Routledge, 1990; Preface, p. XIX.

⁵⁰ Adorno, Theodor W. *Ibid.* p. XX.

construction. ‘Modern scholarship has shown us that in a region of the timeless East, a language reaching its own state of perfection is deconstructed [*s’est deconstruite*] and altered from within itself according to the single law of change, natural to the human mind,’ Villemain, *Preface du Dictionnaire de l’Académie*.⁵¹

In the following pages, I will try to show that Ihde’s concept of multistability implies the concept of brokenness, however, presented in a very different context than that of Heidegger’s philosophy.

The divided Flesh and the withdrawal of the tool

The heritage from Brentano and Husserl is a heritage of a subject-object dualism. I have tried to show how the way in which Brentano and Husserl understood this dualism has shaped the development of contemporary philosophy. It would be reasonable to assume that the influence of pragmatism on Ihde make this aspect of phenomenology disappear from postphenomenology. However, this is not the case. Ihde introduced the *straightforward* and *reflective* standpoints with respect to praxis.

[...] Merleau-Ponty also recognizes that my active, intentional bodily movement may also *incorporate*, include into its very primary experience, a *technology*: “A woman may, without any calculation, keep a safe distance between the feather in her hat and things which might break it off. She feels where the feather is just as we feel where our hand is. If I am in the habit of driving a car, I enter a narrow opening and see that I can ‘get through’ without comparing the width of the opening with that of the wings, just as I go through a doorway without checking the width of the doorway against that of my body.” While this incorporation of an artifact into bodily experience itself echoes Heidegger’s sense of the tool’s withdrawal, it becomes in Merleau-Ponty a more subtle and nuanced phenomenon. [...] In short, embodiment or bodily intentionality extends through the artifact, into the environing world in a unique technological mediation.⁵²

We have said that Freud left the question about the “place” of the Unconscious unsolved. Nevertheless, Freud left the question about the relationship between unconsciousness and action unsolved as well. From the point of view of phenomenology—after Heidegger and Merleau-Ponty—*unconsciousness is the state of the mind in action* and has no other possible place than in the relationship between the body and the physical world. While for Freud, unconsciousness is a black box that we know only through their outputs, for postphenomenology it is directly connected to the *straightforward experience* one of the two essential states of the flesh; correlative to the conscious *reflective experience*. Don Ihde introduced both terms:

If I begin now to take note of my experience, deliberately trying to find the most straightforward experience possible, I may well make a certain discovery. In most of my straightforward experiences, I am certainly not primarily, or even self-consciously, attentive to what is going on with the matter at hand. Thus, if I am chopping wood for the evening fire in Vermont, I am so involved with splitting the wood, that I do not notice much of what goes on around me, nor do I think self-consciously about how it is that I am splitting the wood. In fact, if I do turn critical and self-conscious, while my ax is raised to swing, I may miss the log entirely. But after the fact, I may note in this simple report that I can distinguish and easily move between what appears to be two variations within experience. Straightforward experience, I could and did characterize: it was actional, involved, immersed in the project of

⁵¹ “Letter to a Japanese Friend” in *Between the Blinds. A Derrida Reader*. Edited, with an introduction and notes, by Peggy Kamuf; Arvetser-Wheatsheaf, New York, 1991; p.270.

⁵² Don Ihde. *The Peking Lectures*. Chapter Two.

the moment, narrowly focused and concentrated. My thinking about that experience, also an experience in the general sense (reflective experience), was a reflection or a thematizing of the straightforward experience. These two modes of experience are familiar and easily alternate in the on- going affairs of the day.⁵³

I have illustrated this dichotomy of the Flesh with help from a metaphorical reference borrowed from Arthur Danto who in his book *Analytical Philosophy of Action* from 1973 presented an analogy based on the work of Michelangelo. In the year 1520, the pope Leo X (Giovanni di Lorenzo de' Medici 1513–23) consulted Michelangelo to build a chapel for the Medici family. The pope also wanted Michelangelo to place the tomb of his younger brother *Giuliano* and his nephew *Lorenzo* in the chapel. The genius Michelangelo managed to capture the opposition between action and thought in the tombs of these two men. On one hand, the athletic *Giuliano*, a man of action and on the other hand Lorenzo – *Il Pensieroso* who seems to be lost in deep thoughts, unaware of his surroundings.



Giuliano –
Projection:
(Straightforward experience)



Lorenzo – il Pensieroso.
Introspection: Reflective
experience

Action is a temporal phenomenon, and time is playing here again a very important roll. We have pointed out that for Brentano *thinking happens in a compact time*. Brentano believed in the *simultaneity* of “thinking on A” and “being aware of thinking on A”. Then, Husserl showed that the intentional act can only be occupied by one of these two *modes* of the Flesh at each time but Husserl’s solution to Brentano’s simultaneity-paradox missed that if intentionality is absolute and in one of its states is fully occupied by the noematic content, some other mental phenomena *that occur simultaneously* cannot be conscious. The solution to this enigma is sketched in Ihde’s foundational opposition between the straightforward and the reflective experience fully developed by me in my book *Broken Technologies*, as the two fundamental states of the Flesh.⁵⁴ Without the recognition of this foundational opposition, phenomenology cannot solve the *paradoxes of simultaneity* and cannot explain the phenomenon of the withdrawal of the tool.

The concept of brokenness

The concept of *brokenness* is my contribution to the metaphysical study of technologies

⁵³ Ihde, Don. *Experimental Phenomenology. An Introduction*. State University of New York; 1986, p. 45.

⁵⁴ Fernando Flores Morador. *Broken Technologies. The Humanist as Engineer*. Lund, 2009.

and it is a development from my reading of Heidegger and from a specific interpretation of the work of Ihde as well. While for Heidegger the breakdown phenomenon is what we in everyday life call a “failure” with ontological consequences, for me –following Ihde’s concept of multistability—*brokenness* is a quality of the structure of Dasein. Failures, technical disasters and other similar phenomena are for me only specific cases of brokenness which are the consequence of the ontological brokenness of Dasein. As we can see, there is a significant difference between Heidegger’s concept of the “withdrawal of the tool” and mine own. The question about the simultaneity and the consciousness of the action respective the object of that action during the evolution of phenomenology has led me to a dualism of experience as “projective” and “introspective” which corresponds to Ihde’s “straightforwardness” and “reflexivity”. I call this, the dichotomy of the *broken Flesh*. These two intentional states become manifest at the level of the subject as the *noema-level* (the presentation of what is going to be done) and the *pragma-level* (the action itself). The first is conscious and the second unconscious and both are excluding each other. In my *Broken Technologies* I tried to show that it is possible to understand the structure of Dasein studying how these two states combines with each other for each technological case. In the case of the technical failure, the withdrawal of the tool opens for the suspension of praxis and the initiation of reflection. Nevertheless, independently from the occurrence of a technical failure, I tried to show that it is possible to study the phenomena of technology from the point of view of a *methodological withdrawal of the intentional object*. This “methodological withdrawal” of the noema consists on the suspension of the praxical aspect of technology, breaking the unity between noema and noesis and decomposing it into its noetic content. My analysis reveals that any possible philosophy of technology must break the praxical field that is natural for it –which cloud introspection—before any metaphysical study can be possible. While Heidegger observes how our subjectivity reacts in front of a technical failure, opening for our understanding of Dasein, I observe that the whole lifeworld is *broken for introspection* and it is *repaired through action*. As I conceive technology, technology can only be “whole” when it is implemented; otherwise is broken. Let us read Heidegger’s text to confirm his use of the concept as a “failure”:

When we concern ourselves with something, the entities which are most closely ready-to-hand may be met as something unusable, not properly adapted for the use we have decided upon. The tool turns out to be damaged, or the material unsuitable. In each of these cases equipment is here, ready-to-hand. We discover its unusability, however, not by looking at it and establishing its properties, but rather by the circumspection of the dealings in which we use it. When its unusability is thus discovered, equipment becomes conspicuous. This conspicuousness presents the ready-to-hand equipment as in a certain un-readiness-to-hand. But this implies that what cannot be used just lies there; it shows itself as an equipmental Thing which looks so and so, and which, in its readiness-to-hand as looking that way, has constantly been present-at-hand too. Pure presence-at-hand announces itself in such equipment, but only to withdraw to the readiness-to-hand of something with which one concerns oneself—that is to say, of the sort of thing we find when we put it back into repair. This presence-at-hand of something that cannot be used is still not devoid of all readiness-to-hand whatsoever; equipment which is present-at-hand in this way is still not just a Thing which occurs somewhere. The damage to the equipment is still not a mere alteration of a Thing—not a change of properties which just occurs in something present-at-hand.⁵⁵

In the *Peking Lectures*, Ihde stresses the importance of this preliminary standpoint for Heidegger’s later “inversion of the ontological role of the relationship between science and technology”. In this second moment, Heidegger’s concern with the breakdown phenomenon moves to a metaphysical interpretation that Ihde resumes as follows:

⁵⁵ Heidegger, Martin. *Being and Time*; trans. E. Robinson and J. Macquarrie; New York: Harper and Row, 1962; p. 102-103.

But the use I wish to make of this, is to show how this phenomenon plays an anticipatory role in Heidegger’s famous *inversion of the ontological role of the relationship between science and technology*. This is my second example of a lasting influence of Heidegger upon contemporary philosophy of technology. In the early analysis, once a tool malfunctions or breaks, it is an occasion for it to become *conspicuous*. Becoming conspicuous is an occasion for it to be *decontextualized*—at least from its work project. And decontextualized, it may become an *object of examination, present-at-hand*, in short, a ‘scientific object.’ In this sense, a scientific examination arises out of, and is dependent upon a previous, or *ontologically prior* praxis context.⁵⁶

Ihde recognize here the importance of the breakdown phenomena for a posterior metaphysical consideration of the relationship between technology and science. But then again, I think that Ihde’s conclusions about the status of the breakdown phenomenon in Heidegger’s work, confirms that it is still far away from his (Ihde’s) and mine own concept of brokenness; for Heidegger the breakdown of a technology is still the decline in strength or effectiveness of the tool, and only *after* an essential aspect of Dasein.

The work of Ihde is also crucial for my moving beyond Heidegger’s metaphysics. My concept of brokenness as ontological feature of Dasein, is already anticipated in Ihde’s multistable world, in the sense that it shows that the generation of a multiplicity of broken technologies is a natural feature of its structure. Don Ihde explains multistability as the phenomena in which the “same technology takes quite different shapes in different contexts.”⁵⁷ From my point of view, the definition is in some sense insufficient because each shape corresponds to a different technology and not to the “same”. However, in my terms, the actuality of a shape implies the brokenness of some lifeworlds and a multistable lifeworld is possible because the potential brokenness of each actual form. In my following interpretation of Ihde’s “bow-harp” example, I find a underlying concept of brokenness which is not referring to the *failure* of the bow, but to *the ontological structure of Dasein as multistable* in which the bow and the harp are two ontological manifestations. In my terms, what happens in the lifeworld of the archer/musician can be studied according to the four possible alternatives of the dialectics of *projectivity* (straightforwardness) and *reflectivity*.

Type of brokenness	The type of relationship between the noemata and the pragmata	Argumentation
pragma broken	The bow is used as a harp	Intentionality is redirected. The pragmatics of the bow’s <i>weapon-hood</i> is broken
noema broken	The bow is used just as a bow, only to hear the “twang”	There is a lack of knowledge about the bow’s “other face”, that is, that of the possibility of being converted into a musical instrument
ontic-broken	A harp (a bow-like musical instrument) that is used as a weapon	The relationship between the bow and the harp <i>is not symmetrical</i> ; in this case the harp <i>cannot be</i> a weapon. There is a lack of knowledge about how the harp and the bow dock with the world
ontology-broken	A bad harp (a bow-like musical instrument that cannot be used as a harp) that can only be used as a (bad) weapon	The artefact does not work neither as a harp nor as a bow, but still is intended to be a harp or a bow

Table 1: Don Ihde’s multistability combined with my analysis of brokenness

⁵⁶ Don Ihde. *The Peking Lectures*. Chapter Two.

⁵⁷ ”Technologies—Musics—Embodiments”. Don Ihde. *Janus Head*: <http://www.janushead.org/10-1/>. p. 13.

But the brokenness of the lifeworld and its multistable character is the condition which makes possible the enfleshment of technology. Without its potential brokenness, a technological device will never reach the stage of surrogate of the Flesh. It is its vulnerability, its fragility and its instability, that which “make it work” in a constantly changing world.

While Husserl was concerned with the noema (the perceived as perceived) and the noesis (the perceived as cognition), I am interested in the relationship between the noema and the *pragma*, namely the usability or pragmaticity of a noema revealed through the action of using the artefact. The broken world of the Derridean *trace* and the Ihdean *multistability* can be reconstructed as rhizomatic orders in which the *trace* and the multistability of the world remain untouched. In his methodological reparation of a broken world, I am nearer the pragmatism of Ihde than to the scepticism of Derrida.

Broken Technologies

There are many possible definitions of “technology” and let me use a definition of Svante Lindqvist⁵⁸ who defines technology very intuitively as “those activities, directed towards the satisfaction of human wants, which produce change in the material world.” He says also “the distinction between human “wants” and more limited human “needs” is crucial, for we do not use technology only to satisfy our essential material requirements.” Consequently, from this perspective, a technology that is “broken” could be defined as those activities, directed towards the satisfaction of human wants that are intended to produce changes in the material world that *either do not manage to satisfy these wants or do not produce changes in the material world, or both*. Any definition of technology implies the use of terms as “activity” and expressions as “directed towards” that are very difficult to define without coming into deep philosophical considerations. We are going to see that to avoid a philosophical discussion it will become more and more impossible as we go through the different aspects of broken technologies. We can assume that the *intentionality* imbedded in tools and machines is the same as the “effective procedures” that work beyond human capabilities. However, a tool or a machine can do worse than the human body or than another tool or machine. When tools or machines do worse than the human body does, or when they do better than the human body but worse than other tools or machines, they become *broken technologies*; otherwise they are *full technologies*. We can use this principle to define operationally what a “full technology” is and what distinguish it from a “broken” one.

Suppose that any two technologies can be compared in reference to a task. That which works better is a full technology the others are *broken*. The “market” decides this almost instantaneously because the market is the place in which *docking* (the “coupling” between the artefact and the world) is automatically tested. Obviously, no technology works forever and ultimately all full technologies become “broken”.

Another approach to a definition of brokenness is the term “usability” which improves studying the interaction between the artefact and its user. In engineering, the usefulness of an artefact is determined by two qualities: its *utility* and its *usability*. From our perspective there is *utility* when the artefact is efficiently designed to dock with another artefact or with the world; at the other side, *usability* describes the artefact’s qualities from the point of view of the user. The three goals of the engineering of usability are directed to produce artefacts that fulfil the following conditions: a) the artefact should be “more efficient to use (it takes less time to accomplish a particular task); b) it should be “easier to learn (the operation can be learned only by observing the object)” and c) the artefact should be “more satisfying to be used.” Usability then, is measured through: “*Learnability*: How easy is it for users to accomplish basic tasks the first time

⁵⁸ Lindqvist, Svante. *Technology on Trial. The Introduction of Steam Power Technology into Sweden 1715-1736*. Uppsala Studies in History of Science I, Uppsala 1984; p. 14.

they encounter the design; *Efficiency*: Once users have learned the design, how quickly can they perform tasks; *Memorability*: When users return to the design after a period of not using it, how easily can they re-establish proficiency; *Errors*: How many errors do users make, how severe are these errors, and how easily can they recover from the errors; and *Satisfaction*: How pleasant is it to use the design.” In the case of broken technologies and broken artefacts their usability is broken in all or some of these aspects. Because of that, they are not more efficient to use; they are not easier to learn and they are not more satisfying to use.

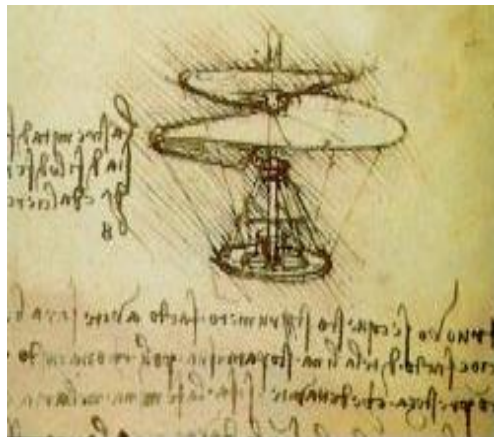
As broken technological examples, we can name some that are very easy to grasp and to understand intuitively. Let us consider first the case of old technologies, as the steam locomotive. This technology still “works” today and it could be used in the same way that it was used hundred years ago. Why should it be called “broken”? The answer is “because of its age”, we would say that it belongs to a world that does not exist anymore. Then, it could be described as “time-broken”. But, what about the technologies of Leonardo’s machines that are artefacts from the 16th Century? They are in some sense old technologies too, but we notice that they are different from cases like that of the steam locomotive. Which are the differences between these two cases? We know that many of Leonardo’s machines were only sketches and never were constructed. We also believe that if they had been constructed, they would not have worked “properly”. The differences between these two cases of brokenness can say something about the world as such. We notice that an important aspect of these two technologies is how their constitutive parts work with each other. A steam motor is an old technology but it still works properly because its constituent parts are “adequate to each other” and “adequate to the surrounding world”. We name this adequacy as “congruency”. We say that the steam engine and the world still “dock congruently”. In the case of Leonardo’s artefacts, that does not occur, because they were designed ignoring many physical laws. The fact that “old” technologies should be included in the family of broken technologies actualizes the importance of time and especially of “history” in this study. We know that the steam engine is a historic vestige of another time. That means that “with time”, full working technologies of today will be converted into broken technologies too. Obviously, is not “time” itself that changes them, but what changes is the way humans wants and needs develops in history. We notice now that Lindqvist’s definition above contemplated the changes that technology makes on the world but did not say anything about the changes occurring between the world of artefacts and the “human world” and how these changes affected technology. To avoid this problem we will try to ground the phenomena of technology in *praxis* with historical connotations. We will call this approach “historical phenomenism” and present technological artefacts as the consequence of *human intentionality* imbedded in tools and machines. “Technology” for us means the development of “intentional effective procedures” that work *within and beyond the human capabilities*. In this sense, broken technologies can also be seen as the result of the situation in which intentional effective procedures of any kind, do worse than the human body does, or when they do better than the human body, they do worse than other intentional effective procedures. At the other side “technology” for us can also mean “knowing how” and in this case technology is the name of some cognitive (not intentional) act.

First-level of brokenness

Let us now consider another example, the “technologies of poverty” which for us are broken technologies too. Any materials that society discards as garbage are suitable for being reprocessed using technologies of this category. What is broken here is the *amount of forms* (noemata) that are available to be used as artefacts and tools. The multistability of the “deprived lifeworld” is limited. Using a “knife” as a “screwdriver” could be a good example of how this technology *redirects intentionality*. The immediate question is the following: what *screwdriverhood-*

qualities does the “knife” have? Moreover, what is it that is *not working here*: is the *knowledge* of the possibilities of the knife respectively the screwdriver’s possibilities to “dock properly” with the world that which is wrong? Is this case, as in the case of Leonardo, a case of lack of knowledge, which causes this brokenness? Alternatively, is it the *system of beliefs*, which is not congruent with the tools? Can it be so that deprived people *believe that* a knife is the same tool as a screwdriver? The answer is simpler, deprived environments do not offer the full range of tools that match the everyday world of “regular” environments. There are no problems with the system of beliefs or with the implied knowledge, what happens is that the technical means that are for disposal are incomplete to match the world of garbage. But this insufficiency is noematic; an initial lack of “forms” demands the recourse of a redirection of intentionality. Because of this case of brokenness, it necessary to distinguish between that which *depends on knowledge* and that which *depends on praxis*.

Knowledge can be manifested as a *clear idea or form* about how the laws of the world work. I call this clear idea a “noema”. To e.g. “tele-transport” a material object to a new place by decomposing its molecular structure, is a technological idea that belongs to the *fantastic*. The idea or *noema* of this technological procedure exists but not their “pragma”. As *pragma*, we understand the technological procedure *itself* that permits the idea or noema to be pragmatically real. We say that fantastic technologies are pragma-broken because “they know what they want” but they do not know “how to manage” to produce these outcomes. Magical technologies at the other side are the opposite case. They have a pragmatic solution (that is the “ritual”) but they have not a clear noema or cognitive base to produce this. The action of cutting a surrogate person to “cure” the disease of a third sick person, is a magical procedure that shows a “precise procedure” for the expected outcomes of this praxis, but “we” (the referent which makes the classification) know that this procedure is not congruent with the world. We say that the magician “knows how to do” but he does not know “what he wants,” and that magical technology is *noema-broken*. Of course, not every case is transparent and each case is different from the others. We can certainly find cases of magical technologies that “really work”.



Leonardo's Aerial
screw
Fruitless technologies

Nevertheless, in those cases the connection between pragma and noema will be *accidental* because “working” magic is always an exception. Other cases are more complex than this because both the noema and the pragma *are* in some degree congruent with the world. That is the situation of the technologies of Leonardo’s machines, which show the presence of both noema and pragma. In any case, we can say that this presence is *weak* even if we cannot precisely indicate in *what sense* they “are weak”. We deduce that their weakness affects their wholeness but *more* in

respect to their pragmatic aspects than to their noematic aspects. Then one can say then that Leonardo's artefacts are *ontological-broken* because they do not work properly in spite of having a *nearly clear* idea about how they *should* work. Ontological-brokenness is a higher level of the pragma-brokenness. It is a matter of degrees that makes the one different from the other. Leonardo's machines are *a little more* pragmatic-open than fantastic machines. Following the same path, we say that the technologies of poverty are *ontical-broken* because they are more weak in respect to their noematic aspects than to their pragmatic aspects. Noema-brokenness, pragma-brokenness, ontical-brokenness and ontological-brokenness constitute for us the first-level of brokenness.

Second-level of brokenness

In the case of out-dated technologies as the steam locomotive; the problem deserves a deeper analysis because there is nothing wrong with their noematic and their pragmatic aspects. These levels work "properly" notwithstanding that these technologies, are *useless*. Time- or historical-brokenness cannot be explained in terms of noematic and pragmatic aspects nor with reference to their onticality or ontologicality.



Steam Locomotive *Hibernia AG No. 7*

The "antiquities" preserved in museums (for example, household things) belong to a "time past," and are yet still objectively present in the "present." How are these useful things historical when they are, after all, not yet past?

Martin Heidegger; Being and time. State University of New York, 1996; p. 348.

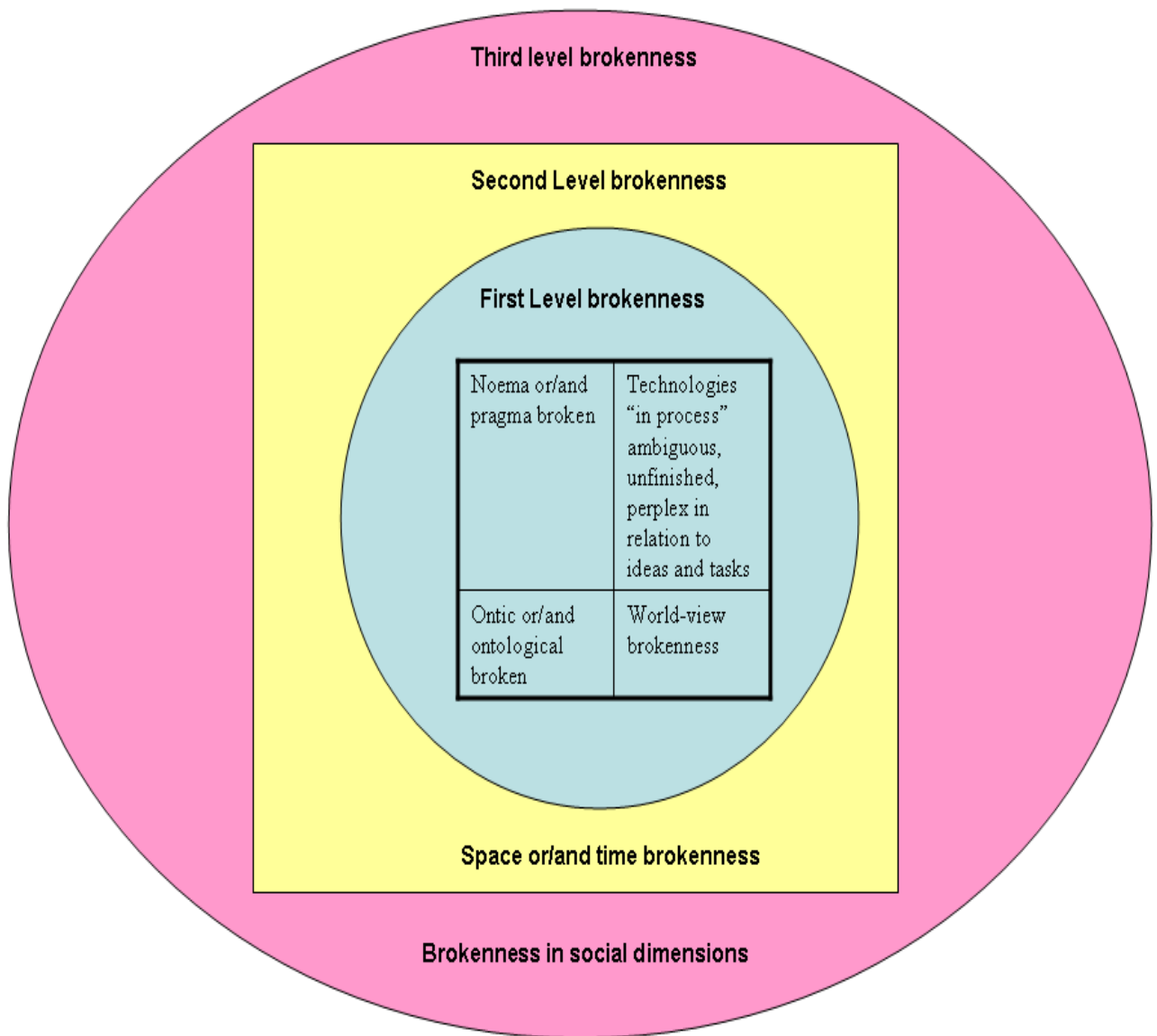
We identify this *second-level of brokenness* as the level in which what is broken is *dimensional*. It is a kind of brokenness that affects the dimensions of time and space, of duration and extension.

Explaining that steam technology is "old" is to say nothing new; to solve this problem we need to introduce the idea of *enigma* or "historical riddle". We mean that out-dated technologies are enigmatic in the sense that they work "properly" but only in a *reconstructed scenario*. In some cases the reconstruction needs to be significant and in some cases will be impossible. For instance if the technological procedures used during the classical time of the Incas in Peru to construct their ships are forgotten, it might be impossible to reconstruct a ship in exact the same way as they did. Another example could be that if some primitive plant used in the preparation of food become extinct, the situation makes the preparation of this kind of food impossible. We can reconstruct the ship and the meal, but we will never manage to *restore* the authentic phenomena into our own reality. Of course, our analysis is an historical one too, and what we classify and organize depends on our perspective of the historical facts. That which for us is broken today was certainly not broken for a man in another time-scenario.

Third-level of brokenness

The idea of "praxis" is very central to our study of technologies, and we need to devote some time to secure this idea. Praxis for us is an *act* and it is always some kind of *action*. Furthermore, actions are spontaneously related to technology and *labour*. That is obvious for the case of any study of machines and tools. We are not trying to develop a theory of action, but it is important to be acquainted with what "to act" means to us. We accept that the mind is split in a

projective sphere and a *reflective* sphere. These two divisions of the mind are not always separable from each other but some criteria can be used to recognize them. The projective sphere is the place of *belief* and *action* because as we understand the divided mind's behaviour, to act supposes the recourse of some extraordinary charge of motivated energy moved into the world of ideas. This surplus of energy is what *integrates* the human body into the world of everyday life. Without the human body's engagement in the world of ideas, no action can be possible. For us actions *are directed throughout* an object and we call this the act of *animation*. For us *to think pragmatically is to act right through something* making the noema of thought a *pragma*. On the other hand, reflectivity is not demanding this engagement and the connection to the human body can remain static. The sphere of reflectivity for us is the sphere of *information* too. Another interpretation could be that the sphere of reflectivity and information has the form of *fractured* intentionality, the combination of the fragments of earlier actions. In any way, this division of the mind that requires the absence of action is a state of *contemplation*. Therefore, "technology" as reflectivity, is *never an action* but a cognitive state of the mind that makes action possible. Human labour uses technological means as patterns of movement, as structures of action that secures some expected results. To implement a technology is then always a special kind of action that we give the name of "labour". There may be actions that may not be implementations of technologies but if they do implement technologies, they *are labour-actions*. In the highest level of brokenness, we find the *value-broken* technologies. This is the third-level of brokenness, in which everything happens in the social and cultural level of the "now". We say that broken technologies can be listed as performances of brokenness of the higher level if they also are *socio-cultural-broken*. We are thinking of a special kind of brokenness, which involve socio-cultural categories as e.g. "labour" connected to the problematic of technology. That is the case of *family labour*, which employs technologies that are home-adjusted, and are in some sense different from their professional correlatives. We say that these family-technologies produce a form of labour that is value-broken. "Value" in this case refers to the exchange value of an artefact on the market. Value-broken means that this artefact has not a "price". Technologies of poverty can be a case of the third level if the product of their work is not remunerated. Out-dated technologies can also show third-level brokenness if they are worthless.



The structure of Dasein from the point of view of brokenness

The word “empirical” is used in Ihde’s context in a pragmatic sense. Sometimes Ihde uses the term to mean “concrete” as when he describes the contribution of pragmatism to postphenomenology: “[Postphenomenology] analyses the role of technologies in social, personal and cultural life which it undertakes by means of concrete—empirical—studies of technologies in the plural. This, then, is a minimal outline of what constitutes postphenomenology.”⁵⁹

Between the years 1996 and 2001 the Dutch philosopher Hans Achterhuis and some of his colleagues published a series of studies of the American philosophy of technology. One of the studies was published with the title *American Philosophy of Technology: The Empirical Turn*. (Indiana, 2001). This “empirical turn” is referred to by Ihde as “empirical or concrete”. Achterhuis refers to the term as “an empirical turn that might roughly be characterized as constructivist.” According to Achterhuis, this empirical turn implies the opening of “the black box of technological developments.” Hence, there are important nuances to be more precise about between the terms “empirical”, “concrete” and “constructivist”. These nuances are essential for the phenomenological method of reductions. Ihde accepts Achterhuis’ description of contemporary philosophy of technology describing this approach as “a step into the examination of technologies in their particularities,”⁶⁰ and taking distance from a transcendental perspective and moving to an “appreciation of technologies as material cultures within a lifeworld.”⁶¹

As we can see, the term “empirical” is used in some vague terms and create the impression that postphenomenology has more to do with empiricism than with pragmatism. We need to remember here that from the work of Husserl and until our days, phenomenology has worked hard to define its limits against empiricism. The term is problematic even for more traditional phenomenological approaches, especially when the phenomenological method of reductions is used on perceptual objects; for instance, to study *visual objects* as Ihde does in *Experimental Phenomenology* from 1986. In this book and throughout his whole work, Ihde uses the term “experimental,” meaning *praxical*, which is absolutely coherent with the phenomenological and the pragmatic tradition. However, Ihde does not use the term “praxis” at all, maybe because of its Heideggerian associations. Nevertheless, what he means in *Experimental Phenomenology* is that in order to understand phenomenology, it is necessary “to do phenomenology”; to learn the phenomenological method in *praxis*.

When phenomenology “sees” an object, this “seeing” is hardly “empirical”, because it is not visual but *eidetic*. That means that phenomenology, being very close to Gestalt psychology is not psychology but “applied metaphysics.” I agree then with Ihde’s description of postphenomenology as “studies of the concrete” or as Achterhuis’ “constructivism” or as the study of “technological particularities” but I think that the use of the term “empirical” is misleading to the phenomenological project in general and to the work of Ihde in particular.

The question of what “is presented” is not exactly the same as what “is seen”. What is presented includes what we see, what we imagine, our ideas and emotions, our desires, our dreams, and any other mental manifestation that we have a name for. This complex object of study of phenomenology is better named as “imagery”. With imagery I refer to “presentations, statues, optical illusions, maps, diagrams, dreams, hallucinations, spectacles, projections, poems, patterns, memories, and even ideas”⁶². I think that the meaningfulness of imagery is revealed through a specific ontic knowledge dealing with the *praxis* of imagery. I think that imagery is the point of departure for *praxis* because ‘what we see’ and ‘not see’ is an incursion in phenomenology. As Heidegger noted in *Being and Time* the term ‘phenomenon’ is related to that which is shown:

⁵⁹ Don Ihde. *The Peking Lectures*. “What is postphenomenology?”.

⁶⁰ Don Ihde. *The Peking Lectures*. Ibid.

⁶¹ Don Ihde. *The Peking Lectures*. Ibid.

⁶² Mitchell, W.J.T. *Iconology. Image, Text, Ideology*. The University of Chicago Press, 1986; p. 9-10.

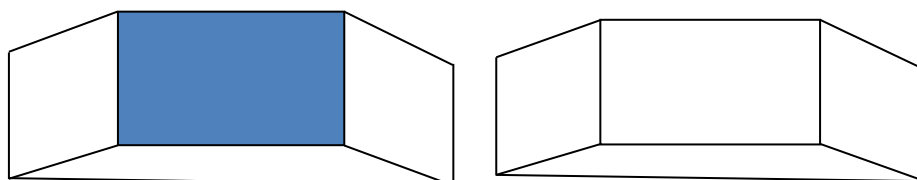
The Greek expression *phainomenon*, from which the term ‘phenomenon’ derives, comes from the verb *phainesthai*, meaning ‘to show itself.’ Thus *phainomenon* means what shows itself, the self-showing, the manifest.⁶³

To study what ‘is shown’ present the problems of ‘circularity of thought’ that is characteristic for any study of being. Maurice Merleau-Ponty confronted this problem which he described as a ‘labyrinth of difficulties’:

We see the things themselves, the world is what we see: formulae of this kind express a faith common to the natural man and the philosopher—the moment he opens his eyes; they refer to a deep-seated set of mute ‘opinions’ implicated in our lives. But what is strange about this faith is that if we seek to articulate it into theses or statements, if we ask ourselves what is this *we*, what *seeing* is, and what *thing* or *world* is, we enter into a labyrinth of difficulties and contradictions.⁶⁴

At this point we should be confronted with the problem of the delimitation of the object of study; the problem of finding a suitable definition or universal or essence that can univocally delimit what imagery is.⁶⁵ But from our point of view, this is not a real problem. We can be sure that finding a suitable definition of imagery is not relevant from the point of view of phenomenology, because the answer about ‘what is shown’ in imagery is the same for any of its variants. It is enough to delimit the boundaries of the imaginary against the visual.

In his *Experimental Phenomenology*, Ihde presents a group of phenomena which he names as “Multi-stable visual examples” that are characterized by line drawings of an abstract character which can be considered simplifications of ordinary phenomena:



Being “visual,” these pictures are not phenomenological objects until they are converted into “presentations” of eidetic character (noesis-noema references). This conversion occurs when the reductions of the visual field permits the observer to understand—in Level 2, below—that the two figures constitutes the same eidetic content (polymorphic), and that instability of the

⁶³Heidegger, Martin. *Being and Time*, 1996, p. 25.

⁶⁴Merleau-Ponty, Maurice. *The Visible and the Invisible*. Northwestern University studies in Phenomenology & Existential Philosophy, 1968, p. 3.

⁶⁵W.J.T Mitchell confronts this problem when he tried to define the field of ‘imagery’; he chooses to avoid the question about the essence of imagery choosing the Wittgensteinian family-resemblance theory: “Two things must immediately strike the notice of anyone who tries to take a general view of the phenomena called by the name of imagery. The first is simply the wide variety of things that go by this name. We speak of presentations, statues, optical illusions, maps, diagrams, dreams, hallucinations, spectacles, projections, poems, patterns, memories, and even ideas as images, and the sheer diversity of this list would seem to make any systematic, unified understanding impossible. The second thing that may strike us is that the calling of all these things by the name of ‘image’ does not necessarily mean that they all have something in common, it might be better to begin by thinking of images as a far-flung family which has migrated in time and space and undergone profound mutations in the process.” Mitchell, W.J.T. *Iconology. Image, Text, Ideology*, 1986; p. 9-10.

visual field depends on the phenomenological multistability of the noesis-noema relationship. Ihde expresses this in a table as follows:

Level 1	Noetic context “seeing as”	Noema
Figure 1	Literal mindedness	Hallway appearance
Figure 2	Literal mindedness	Pyramid appearance
Level 2	Noetic context	Noema
Figures 1 and 2	Polymorphic mindedness	Hallway and /or pyramidal appearances

Summarizing the question about the “empirical turn” of Phenomenology into Post-phenomenology, it could be said that, if the process of pragmatizing Phenomenology is done favouring pragmatism to the extent that it takes a dominating role, Post-phenomenology can lose much of the accuracy of the original phenomenological language.

The importance of the example

Departing from Husserl’s phenomenological method of invariances, Ihde instrumentalize it changing path to a pragmatic perspective which is not specifically named but is strongly present: the notion of *abduction* of Peirce. Abduction is *guessing* according to some logical rules which in our case are ontological. In fact, it is possible that a complete logical account of what is “guessing” could not be possible to achieve following only logical rules. It is obvious that the “empirical” method of discovery, consist more in abductive steps that on deductive and inductive ones. An ontological variant of Peirce’s abductive judgment is very similar to the method of invariances of Ihde.

In Husserl’s earlier use, variations (originally derived from mathematical variational theory) were needed to determine essential structures, or ‘essences.’ Variations could be used to determine what was variant, and what invariant. I have also found this technique to be invaluable in any phenomenological analysis—but as I used this technique, I discovered something other than Husserlian ‘essences’ as results. What emerged or ‘showed itself’ was the complicated structure of multistability. My first systematic demonstration of this phenomenon occurred in *Experimental Phenomenology* (1977). Using so-called visual illusions, I tried to show how the phenomenological notion of variation yielded both deeper and more rigorous analyses of such illusions than mere empirical or psychological methods.⁶⁶

Departing form studying invariance in visual “illusions”, Ihde moves to then the study of invariances in technologies:

⁶⁶ Ihde, Don. *The Peking Lectures*. Ibid.

At this point, I want to make a large leap, to an example set now related to technologies. While the use of visual ‘illusions’ has the advantage of initial clarity and ease to demonstrate multistability as a phenomenological result of variational analyses, these illustrations also have the disadvantage of being all too simple and all too abstract. [...] So, my next example set will draw from a very ancient, and a very simple, and a very multicultural set of technologies: archery [bows and arrows]. [...] My use here, however, is to show how this practice is also multistable in precisely its phenomenological sense developed in the earlier examples. Once again, I look for variations, embodiment, and now more fully, lifeworld dimensions. In an abstract sense, all archery is the ‘same’ technology in which a projectile [arrow] is propelled by the tensile force of a bow and bowstring.⁶⁷

The study of invariances is founded in the study of *examples*, the most important change in the practice of Phenomenology and one of the most characteristic contributions of Ihde. Husserl’s phenomenology was not elaborate using examples, and this particularity makes many of his arguments very difficult to follow. With Heidegger’s work, the status of the example becomes stronger, but examples in Heidegger are in fact *metaphors*, as the case of the paradigmatic case of the “hammer” illustrates. The status of the example becomes much stronger with Merleau-Ponty, and he is certainly an important source of inspiration for Ihde. The example introduces also the concrete, and the visual or symbolic presentation of concrete cases. The study of invariances, then anticipates the development of phenomenology in the direction towards a study of *argumentation through exemplification*.

I am not claiming here to have exhausted the variations, but these four [examples] are enough to show that the phenomenological variations which now include considerations of the materiality of the technologies, the bodily techniques of use, and the cultural context of the practice, are all taken into account and demonstrate again the importance of variational theory with its outcome in multistability, the role of embodiment, now in trained practice, and the appearance of differently structured lifeworlds relative to historical cultures and environments.⁶⁸

It would not be exaggerated to say that the most significant impulse that the work of Ihde gave to my own work has been the uses of examples and the importance of invariance in phenomenological analysis. With the goal of describing the “humanist as engineer”, and following this aspect of Ihde’s work, I have been working with the development of a method of variations that can systematize the pragmatic approach to phenomenology through the use of examples. I think that this –together with concept of multistability—is Ihde’s most important contribution to Phenomenology.

The epistemological engine and the generalization of the example

In *Question Concerning Technology* from 1954, Heidegger argues that “technology is ontologically prior to science”, and here Heidegger is moving forward to a metaphysical understanding of technology. The Heideggerian ontological priority of technology over science, is a central theme in the work of Ihde; a theme that Ihde resumed in the concept of *technoscience*. The paradigmatic character of technology for the history of technoscience is reminiscent of the work of Thomas Kuhn and places this development of Ihde in this tradition too. Ihde explains:

This ontological priority of technology over science, leads Heidegger to strongly recognize that all modern science is instrumentally, or technologically embodied.[...]. No instruments;

⁶⁷ Ihde, Don. *The Peking Lectures*. Ibid.

⁶⁸ Ide, Don. *The Peking Lectures*. Ibid.

no science.⁶⁹

For Ihde, technology precedes science, in the sense that it provides science with a *lifeworld* (or what Marxists would call “material ground”). This thesis was defended by Ihde already in 1983. The praxis of scientist cannot be grasped without understanding the meaningful use of the instruments and experimental devices. In this context Ihde developed the concept of “epistemology engine” in *Bodies in Technology* from 2002. In a text written together with Selinger defines the concept as follows:

An “epistemology engine” is a technology or a set of technologies that through use frequently become explicit models for describing how knowledge is produced. The most dramatic examples of “epistemology engines” influence our notions of subjectivity, directly affecting how I understand what it means to be human and to perceive things from a human perspective. They enable us to draw connections between the knowledge producing capacity of the human mind and technologies that putatively function according to similar mechanical processes.⁷⁰

The authors give us some examples:

In antiquity, catapults worked this way for the ancient Greeks. Later on, the mill served this function for G.W. Leibniz, as did the telegraph system for Sir Charles Sherrington, and hydraulic and electro-magnetic systems for Sigmund Freud. The digital computer is currently functioning as an “epistemology engine” for many, and as a result, possibly even endangering our appreciation for the intuitive basis of expertise.

At this point “technology” is not only some “effective procedure” or structure of human action that achieves a practical result, but much more than that, some specific technological procedures become epistemological paradigms of technoscience. In *Bodies in Technology*, Ihde introduces the case of the *Camera Obscura* as an example of epistemological engine.⁷¹ He refers the importance of this device for the Renaissance and later for Descartes and Locke philosophical developments. This implies the rise of a new kind of hermeneutics which Ihde defines as *embodied*:

What, now, do these developments show regarding my chosen variables of embodiment, technologies and technoscience practices? First, as noted, the instruments, technologies, are obviously essential and necessary for the production of the scientific knowledge now emerging from the ‘new astronomy.’ If one *reflexively reverses* perspective, then the question of human embodiment can again arise. I will argue that we are not now in the realm of the ‘post-human’ as some have proclaimed? Rather, we now have, with the new imaging, a different kind of human-technology-knowledge relation, a relation which I shall term *embodied hermeneutic*. There remains a reflexive reference to human embodiment and perception; but it is differently located.⁷²

This aspect of the thought of Ihde, leads us to a new area of study, maybe influenced by Ihde’s earlier studies of the hermeneutics of Paul Ricoeur. The revolutionary role of technology as the medium of knowledge is exceptional when the traditional field of scientific “observation” transformed to a new field of “imagination”:

An interesting question arises concerning how the new astronomy came into being. The usual answer lies in technological developments which took place in the mid-20th century. The answer again implies new developing technologies—this time *radio technologies*. [...] Radio

⁶⁹ Ihde, Don. *The Peking Lectures*. Ihde quotes Heidegger.

⁷⁰ Ihde, Don and Selinger, Evan. “Merleau-Ponty and Epistemology Engines”. Springer Publisher, 2004.

⁷¹ Ihde, Don. *Bodies in Technology*; p. 71-75.

⁷² Don Ihde. *The Peking Lectures*. Chapter Three.

telescoping was the first astronomical imaging to exceed optical limits. But later, other imaging of the *microwave radiation spectrum* became possible. Here we now reach the 20th century and the imaging revolution proper. [...]

Instruments of different kind using different kind of technology “observe” the natural world and then *transcribe* this information into human parameters. The process of transcription is problematic in itself because the human sense organs capabilities are not compatible to the capabilities of the new instruments. The hermeneutical problem then can be formulated based on the reliability of these transcriptions in the framework of a “material hermeneutics.”

With the natural science examples just used, notice that the object realms investigated usually do not contain ‘linguistic’ dimensions. There are no texts, no speech, no propositional or rhetorical expressions. To observe, whether in the limited passivity of astronomy, or the highly interventional practices of particle accelerators, is to enact the questions asked through material, instrumental means. Materiality, in a double sense, pervades the natural sciences, both in the form of what is investigated, and in the instrumental modes by which the investigation proceeds.⁷³

The technoscientific turn of Ihde—which in some sense is a turn from philosophy to history—is a good example of the importance of Phenomenology for historical studies. This turn is based on Ihde’s earlier work on the typology of technologies:

Don Ihde’s typology		formula
Technologies of embodiment	In wearing eyeglasses, <i>perceptions changes</i> . The perceived World seen through the eyeglasses became the <i>real</i> world.	I-[glasses]-world
Hermeneutic technologies	Thinking the landscape through a <i>map</i> the World and the map became the same. But the connection between the map and the World is not perceptual but <i>hermeneutical</i> .	I-[map-world]
<i>Technologies of Alterity</i>	Intelligent robots and humanoids are good examples. The real World disappears behind an analogical device that imitates life. The World became unconscious.	I-technology-[world]
Background technologies	That is the case of technologies as electricity. We notice its <i>presence</i> first when it is <i>absent</i> . Technology is working <i>outside</i> the conscious world.	I-[technology]-world

One of the most important characteristics of post-phenomenology—, which is one of Ihde’s strengths—is his flexibility to choose and change between earlier philosophical references. In this sense, when studying the typology of technologies, Ihde moves permanently from a Husserlian perspective to a Merleau-Pontian or to a Heideggerian without any important discontinuity. For example, notice that Ihde’s approach still has the “I” (the “ego-reference”) in the formula that connects the referent subject with the technological type; this approach is typically Husserlian. Secondly, notice here that “technologies of embodiment” is a clear Merleau-Pontian reference. Third, “hermeneutic technologies” are pointing in the direction of Heidegger (maybe of Ricoeur too). Fourth, the “technologies of alterity” opens to non-phenomenological traditions prevenient from psychology, cognitive science and cybernetics. Finally, “background technologies” make an unmentioned reference to themes related to unconsciousness.

⁷³ Don Ihde. *The Peking Lectures*. Chapter Four.

Don Ihde and the question of an Ethics of Technology

After Don Ihde opened the metaphysical Pandora box of technology, the normative point of view of technology could not be the same that Heidegger and his time. The dystopian ethics of the classics of the philosophy of technology belong to a pre-embodied, pre-multistable and pre-broken world and therefore, their ethical accounts were characterized by being done from “outside” the thing. Heidegger, in spite of being the architect of the concept of “praxis,” belongs to a time before embodiment and his account of the tool was necessarily *extern* to the thing. After Merleau-Ponty and particularly after Ihde, the ethical aspects of technology cannot be separated from the technological concrete, in an evaluation of technologies’ multistable character in a broken world. The question is that “a hammer,” is not only a hammer, it is *also everything that you could do with it*; and in each new case you manage to find, the hammer *is something else*. Now, how could be possible to discuss a moral of the uses of the hammer’s without considering its multistability? What can we say about the “cloning of humans”, or the “atomic bomb”, if the cloning of humans and the atomic bomb are only particular states of multistable and unknown number of praxical paths? To the multistable character of the technology of “cloning of humans” belong an increasing number of medical technologies and to the multistable character of the technology of the “atomic bomb,” belong the production of electricity. How could be possible to discuss the one without the other? Affirming that the ethical discussion of technological particulars can be performed without consideration to their multistability is thinking the world through the artificial positivism of a “manual”.

As I understand the strategy of Ihde (which is also my own) is that of trying to understand the structure and behaviour of the Flesh toward technologies, artefacts and machines in the context of an embodied lifeworld. This understanding can give us answers according to how and why the embodiment of praxis *forms* the lifeworld and vice versa. That means to understand how conscious and unconscious acts determine praxical results. Each act is value charged, and each technology is revealing this praxical charge. For instance, my concept of brokenness—developed as a metaphysical answer to the concept of multistability—is strongly ethically charged, not because it has been thought to give support to a normative philosophy, but because as a pure descriptive concept, it produces a *cracked* world, which is recoverable only through its re-creation through *the norm* of praxis. The “norm” here coincides with the Marxian maxim “does not interpret it, transform it”. What has being “immoral” and worried both Husserl in *Crisis* and Heidegger in his dystopian understanding of the development of history, was the extreme and naïve optimism of positivism, an optimism derived from thinking technology from “outside” as something *interpretable*. The only meaning of technologies is in their use; they are nothing outside the pure movement of the doing. An ethical approach to technology is given then, through praxis and its consequence is the lifeworld. But it cannot be studied *without doing it*. There is no possible ethics *a priori* as a pure theoretical task because before praxis there is no technology.

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