

The Big Bang of History

Visualism in Technoscience

The Humanist as Engineer

Book II; Ver. 2.0

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Dedicated to Don Ihde

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Chapter 1: The Big Bang of History

Introduction: What is a “historical” presentation?

I will make clear my understanding of “history” which in some other texts have described as “post-phenomenological”. Let me make some essential distinctions between the following presentations. We notice that Presentation 2 is *descriptive* and Presentation 1 is *demonstrative*. In the first case the presentation is about a *thing* while in the second case is about an *action*.



Presentation 2:
Descriptive.



Presentation 1:
Demonstrative.

I will defend the thesis that historical presentations are always demonstrative and never descriptive. However the limits between description and demonstration can be difficult to decide

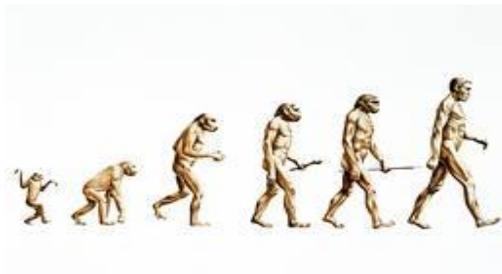
A second important distinction that I will make is that between testimonial and non-testimonial presentations. The death of e.g. Charles XII of Sweden (Presentation 3) is well documented through many important sources that *witnessed* the action. It is possible to consider this painting as “historical incorrect”. To paint the soldiers, Cederström use French references as models and the place of the funeral is not Norway but Swedish Uppsala. However, this meaning of “historic correctitude” is not what I

mean as “testimonial”. That Cederström was not personally present and that the funeral is not a photographic copy of the real funeral, is not important to define what I mean as testimonial. The painting is testimonial because Cederström got the motif of the painting from sources that were contemporary to the historical fact.



Presentation 3: *The funeral transport of Charles XII* by Gustaf Cederström, 1884.

At the other hand, the presentation of human evolution (Presentation 4) is *non-witnessed*. Other non-testimonial presentations could be for example the presentation of a Big Bang explosion as the origin of the universe; the Freudian presentation of the murder of the ancestral father and the Marxian theory about the role of the hand and labour for the development of humanity.



Presentation 4: A presentation of the human evolution.

Photographs can be both descriptive and demonstrative but they are always testimonial because someone must have taken them. For instance, a photo of the atom is testimonial as in Presentation 5:

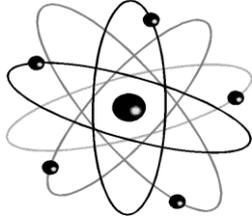
Chemistry textbooks typically include illustrations of atoms, but with limitations. The drawings depict atomic nuclei surrounded by electron orbitals—fuzzy spheres, barbells, tripods, and so on—but those figures represent the probability of finding an electron at a certain place around the nucleus rather than an actual “shape.” Researchers have now managed to image the electron orbitals and show for the first time that, in a sense, atoms really look like those textbook images.¹



Presentation 5: a testimonial presentation of the atom. *PHYSICAL REVIEW B*, Vol. 80, NO. 16; October 2009.

However, Presentation 6 is non-testimonial because it is an extrapolation of the available data and not a photograph:

¹ Scientific American December 1, 2009-12: New Microscope Reveals the Shape of Atoms. Improved field-emission microscope images electron orbitals, confirming their theoretical shapes. By Davide Castelvecchi. Orbitals of a carbon atom, as seen by a field-emission microscope. Image: From "Imaging the atomic orbitals of carbon atomic chains with field-emission electron microscopy," by I. M. Mikhailovskij, E. V. Sadanov, T. I. Mazilova, V. A. Ksenofontov and O. A. Velicodnaja, in *PHYSICAL REVIEW B*, Vol. 80, NO. 16; October 2009. *PHYSICAL REVIEW B*, Vol. 80, NO. 16; October 2009.



Presentation 6: Non-testimonial presentation of the atom.

Extrapolative presentations as Presentation 6 are *fantastic* in the sense that they present a world with a known geography but without any possible location. The presentations of the micro-world are more or less fantastic, depending on the accuracy of the used instruments and the limitation of the human eye. In this frontier of knowledge, presentations status – descriptive/demonstrative; testimonial/non-testimonial can change quite radically. Further, testimonial respectively non-testimonial presentations cannot be divided according to categories as “scientific” and “non-scientific” because it is possible to find them distributed in any discipline and level of knowledge.

The pursuit of terminology

I believe—with Deleuze—that philosophy is the *creation or construction of concepts* that are not universal, but a tool to pragmatically produce something new. To decide to develop or not a new terminology can be crucial to a philosophical enterprise. Too much new terminology can be devastating because of the lack of references to the actual historical frame. At the other hand, too little new terminology, can compromise the novelty of the message, awakening references to old and irrelevant discussions. For example, according to Don Ihde, Husserl’s use of the language of the philosophy of his time condemned his thought to be enclosed in an older frame. Husserl’s radical program became limited by necessity, because his terminology was captive to the semantic sphere of the modernist project. Words have a life of their own; they make us think within their own layers of meaning:

In this respect, Husserl must be termed a naive *hermeneut*. He did develop

a powerful archaeology of meaning in and through his “phenomenological reductions,” but he failed to avoid, or transcend, or cut through the universe of discourse, which retained its power through and in spite of his attempts to overcome it, precisely because he was not able to neutralize the non-neutral themes, which pervaded the language of Modern philosophy.²

Moreover, the consequences of this naivety were the following:

Husserl’s problems and their sources, at first, seem rather far removed from those of either classical or early contemporary hermeneutics. Rather, Husserl’s concerns for a radical reformulation of the sciences arose within the traditions of Modern rationalism and empiricism. The ideal—the dream—of Modern philosophy had been for a truly radical beginning, a search for some absolute grounding from which to build, step by step, a certain and universal science. And whether this was the innate, clear, and distinct ideas of the cogito of Descartes or the simple ideas of Locke at the origins of empiricism, this search was also Husserl’s. Husserl’s phenomenology was the search for yet another absolute grounding for a universal science, and the language used by Husserl remained under the aura of his philosophical roots. The ‘transcendental ego,’ ‘transcendental subjectivity,’ his ‘science of experience’ with its ‘descriptive psychology,’ ‘apodicticity’—all retains the flavour of the transcendental traditions of Modern philosophy.³

We can say that Husserl himself began to understand and solve this problem when he introduced the terms Noema-Noesis as substitutes for the terms Object-Subject. It was Heidegger, however, who was the first to completely understand that terminology was bonded to a purpose. The richness of Heidegger’s terminology, and the original perspective it gave, assured the triumph of his radical phenomenological program:

Husserl’s hermeneutically oriented followers were quick to discover this weakness and promptly attempted to overcome this strategy. Martin Heidegger, at least as early as *Being and Time*, was keenly aware of Husserl’s strategic weakness and while adapting what I have argued elsewhere is a quite explicit phenomenological method for his own fundamental ontology sharply diverged from Husserl’s linguistic naiveté. Viewed in one way, Heidegger’s strategy was to avoid as thoroughly as possible the extant problems of Modern philosophy by coining a

² Ihde, Don. *Expanding Hermeneutics*; p. 12-15.

³ Ihde, Don. *Op.cit.*; p. 12-15.

radically new language which skirted or circumvented the terminology of ‘subject’—‘object’ and the constitution of knowledge.⁴

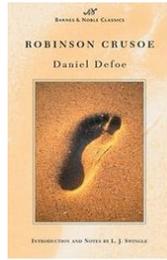
The drawback of an original terminology is that it requires the reader to learn the new terms before he or she can begin to understand. We choose to avoid the risk of misleading terms introducing many new terms that hopefully will not be too much difficult to understand. My terminology is the most of the time intuitively close to traditional philosophical terms, but meaning something different by an intentional “displacement” of meaning. This displacement of meaning will be achieved following a simple rule which is the main terminological rule of this book I will avoid the suffix “logy” in terms as “technology” and substitute them by the suffix “gnomy” (from *gnomy* from the Greek *gnomon*, “means of judging or interpreting”). Because our research is essentially ontological, we will avoid any association to epistemological approaches. I have placed a list of the most important new terms at the end of the book.

Case studies

Testimonial presentations are possible because they are presenting descriptions and demonstrations contemporary to consciousness. This do not means that every testimonial presentation is conscious. Some presentations are obviously contemporary to consciousness as Presentation 7, in which testimonial presentativeness is the only possibility.⁵

⁴ Ihde, Don. Op.cit.; p. 12-15.

⁵ “It happened one day, about noon, going towards my boat; *I was exceedingly surprised with the print of a man’s naked foot on the shore, which was very plain to be seen on the sand.* I stood like one thunderstruck, or as if I had seen an apparition. I listened, I looked round me, but I could hear nothing, nor see anything; I went up to a rising ground to look farther; I went up the shore and down the shore, but it was all one; I could see no other impression but that one. I went to it again to see if there were any more, and to observe if it might not be my fancy; but there was no room for that, for there was exactly the print of a foot – toes, heel, and every part of a foot.” *Robinson Crusoe* by Daniel Defoe.



Presentation 7: *Robinson Crusoe* by Daniel Defoe.

The presentation of an *anthropognomic* conjecture is certainly a mark of contemporariness. However, is Presentation 7 demonstrative or descriptive? The footprint implies an action but this action is not presented in Presentation 7 but in other connected presentations chained to Presentation 7 in an eidetic conjecture.

Let us study different presentations of the *Archaeopteryx* which is considered the “mixed link” between dinosaurs and birds. In the following presentation, we can follow different approaches to the issue: according to the collected evidence, dinosaurs and birds are in common among others the following features: feathers, eggs, nests, small size and breathing system.⁶

Presentation 8 is obviously historical—in the sense that it a presentation of an action—but is non-testimonial because is an extrapolation of the available data (an extrapolation of the kind “If I be there I will see the bird as such.”)



Presentation 8: Archaeopteryx, according to the work of an artist. It is believed to be the world's earliest bird and a descendant of the dinosaurs.

Presentation 9 is a photo and therefore is testimonial. In this case is

⁶ The pictures are from “Nine links in the transition from dinosaurs to birds. Scientists have plenty of strong evidence that birds evolved from dinos.” (Science on www.msnbc.msn.com) — John Roach, msnbc.com contributor. (2012-02-11)

the presentation of a thing and not of an action and therefore is descriptive:



Presentation 9: Strong support for the dinosaur-to-bird transition came with the discovery of two birdlike eggs inside a fossilized female dinosaur.

Presentation 10 is demonstrative and non-testimonial extrapolation. It is an expression of the identification: “If I be there I will see the dinosaur as such.”



Presentation 10: Male meat-eating dinosaurs such as Troodon, guarded nests and brooded developing eggs much the way some birds do today.

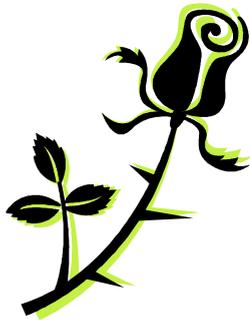
Presentation 11 is a descriptive testimony (photograph) of a fossil. The position of the fossils presents often an action to be performed just before the dead moment; in that case, the fossil itself has historical value when the scientist assumes the reconstruction of that action with the form: “If I were the bird I would have done that and that.”



Presentation 11: An 85-million-year-old carnivorous dinosaur unearthed in Argentina had a breathing system of bellows, or air sacs, which helped pump air through its lungs. Today, only birds breathe in this manner.

Eidetic extrapolation

My purpose here is to study the historical extrapolation: at one hand, the conjecture based on *testimony* and at the other hand, the *non-testimonial* conjecture that I will argue are based on *ontic intuitions*. Let us study the following Presentation 12 of a rose, which is descriptive; let us convert this presentation into a historical presentation asking us about the evolution of the thorns of the rose.



Presentation 12: The pictograph of a rose.

We notice that the rose has thorns; now, how can the rose's thorns be explained? Further, in which family of historical presentations could this question be placed? Of course, nobody could possibly have witnessed the development of the rose's thorns; consequentially this question must be non-testimonial. However, which are the possible presentations that allows

to a suitable answer of this kind of questions? The only possible answer is ontic: “the rose has thorns to defend itself,” *because* “if I were a rose I would use the thorns to defend myself”. Because we have experienced that is difficult to approach to a rose without getting a thorn in one’s finger, our conclusion is that *they must fulfil a defensive purpose*. This can be deduced from some of the *technognomies* of war as the flail of Presentation 13.



Presentation 13: A picture of the flail.

The conjecture belongs to the ontic level. To explain why the rose has thorns demands that I “give the rose a voice”. It could be argued that this conjecture is based on probabilities, but in this case, the term “probable” do not means “mathematically probable” (on which presentations could the mathematical calculation be based?) but “ontologically probable” which is to what a conjecture can be associated.

The compactness and porosity of presentations

Thomas Kuhn recognizes the richness of information available to the historian but in this richness, not everything is lying served to pick up:

The historian at work is not, I think, unlike the child presented with one of those picture puzzles of which the pieces are square; but the historian

is given many extra pieces in the box. He has or can get the data, not all of them (what would that be?) but a very considerable collection.⁷

This puzzle has to be solved using data which is conscious and *out-conscious*.

According to proponents of the covering law model, a historical narrative is explanatory to the extent that the events it describes are governed by laws of nature and society to which the historian has conscious or *out-conscious* access.⁸

The use of the term “out-conscious” is very rare in Kuhn’s texts and it appears to refer to that which is *unsaid* in his historical accounts. But which is the relation of the out-conscious to the testimonial? We can affirm that we can “perceive three wine glasses on the table”; but not see all the shoots, clusters, and grapes of the vine.” This is a quote which belongs to Jorge Luis Borges, which reveals the fantastic alternative of a different and impossible “compact” lifeworld.⁹ Everything that is lost in each day of our life is potentially testimonial because is contemporary, but much of the testimonial is out-conscious. So, testimonial presentations and conscious presentations are *not* covering the same field of phenomena. The same can be said about non-testimonial presentations which do not coincide with conscious presentations either. So, historical presentation in general—both testimonial and non-testimonial—present conscious as well as out-conscious eidetic contents. However, the out-consciousness of testimonial presentations demands extrapolations inside the scope of human experience or *short-term extrapolations* while non-testimonial presentations admit non-witnessed conjectures or *long-term extrapolations*. ‘The impossibility of a mind as Funes’ mind in Borges’ text, is revealing indirectly the nature of the historical

⁷ Kuhn, Thomas. *The Essential Tension*; p. 12-13. “The historian at work is not, I think, unlike the child presented with one of those picture puzzles of which the pieces are square; but the historian is given many extra pieces in the box. He has or can get the data, not all of them (what would that be?) but a very considerable collection. His job is to select from them a set that can be juxtaposed to provide the elements of what, in the child’s case, would be a picture of recognizable objects plausibly juxtaposed and of what, for the historian and his reader, is a plausible narrative involving recognizable motives and behaviors. Like the child with the puzzle, the historian at work is governed by rules that may not be violated. There may be no empty spaces in the middle either of the puzzle or of the narrative. Nor may there be any discontinuities.”

⁸ Kuhn, Thomas. *The Essential Tension*; p. 15 (emphasis mine).

⁹ “Funes the Memorious”. *Ficciones* from 1944.

presentation and its radical difference from conscious presentations in general. There is no possible historical account that could describe every aspect of phenomena. One important aspect of the historical presentation is then that it *can or not* be conscious or what is the same, a historical presentation is not about a “compact” but about a “porous” lifeworld. The Kuhnian question: “what would that be to get all the data?” can then be answered: you get a compact presentation, a *recording* of some kind, a pure *descriptive* presentation. Descriptiveness and porosity are incompatible aspects of a presentation.

The *enigma* and other extrapolations

Of course, because we are aware of the silent presence of out-conscious data, it must be important to take the miss of these out-conscious data into account. Already the notion of “puzzle”—that for Kuhn defines the work within “normal science”—is referring to an *implicit* or *silent* order that the historian’s work will expose. However, the analogy of the puzzle does not open to a variety of interpretations either, because in a puzzle there is only one possible solution and that is not a bona fide description of the work of an historian. The analogy of a puzzle is more adequate to describe the internal relationship existing between the parts of a description. Searching for a more suitable analogy for the demonstrative presentation, I believe that the term “enigma,” will be much better. (Latin *aenigma*, from the Greek *ainigma*, “to speak obscurely or speak in riddles”, from *ainos* “fable or riddle,” a word of unknown origin certainly connected to the speaking manner of the gods.) Thus, I will consider historical presentations as enigmas distinguishing between short-term extrapolations if they are testimonial and long-term extrapolations if they are non-testimonial. Puzzles are cognitive problems in which some variables are known and others are not. The difficulties of a puzzle depend on just the balance between the known and the unknown. Some puzzles are deductive, others inductive. Some puzzles have to be solved with experiments, others with interviews, others with mathematics and others by research in archives or libraries. Nevertheless, all puzzles *are built on descriptive presentations*, while enigmas are built on *demonstrative presentations*. The solution of an enigma, supposes the study of all the information available and more—including in this “more”

the short-term and the long-term extrapolations embodied in the porosity of culture.

The enigma *eludes* description

An enigma is the expression of an ontologically “missing” part of a presentation. For example, Bartolomé de Las Casas studied in his *Historia de las Indias*, under the subtitle “Old cosmographical news which could have influenced Columbus to perform the travels which ending with the discovering of *Indias*”, five different reasons explaining the event of the discovering of America. Four of them have to do with testimonial cosmographic data, such as the roundness of the earth, the distance to *Indias*, etc. Las Casas’ analysis is astonishingly modern because he tried to find a connection between the scientific knowledge of his time and the historical development. However, one of Las Casas’ five motives is more interesting to our purpose than the others. According to Las Casas, Columbus had heard from other sailors that “nearly all was already discovered” and that the “only missing part was the space between East Indies and the islands of Cape Verde”. We know today that other sailors had travelled in direction towards the New World. For example, the Portuguese João Vaz Corte Real could have been the first modern European to visit America. He presumably explored North America in the year of 1472, that is, twenty years before Columbus. Many of these travels were “secrets of state”, and therefore very little are documented about them. Consequently, it is possible that Columbus got some information about these travels through his contacts with other sailors. Let us accept that Columbus knew that João Vaz Corte Real travelled to the *Indias* through the existence of some testimony. That would mean that Columbus followed João Vaz Corte Real’s steps. However, if we accept that João Vaz Corte Real was the first captain to travel to *Indias*; how was possible to João Vaz Corte Real to find the way to *Indias*? Consequentially the action of João Vaz Corte Real becomes now the non-testimonial aspect of the conjecture. The possible information that Columbus could or not have received from earlier travellers belongs to the sphere of the enigmatic because there is an ontic *gap* between any kind of information that he could get and the conclusion he arrived, and this gap cannot be helped by description; the answer will *elude* any prove.

We do not read historical presentations as Las Casas' did because we know much more about how people act, how kings and governments think and act, how societies are structured and behave. In our explanations, we can refer not only to the cognitive horizon of the late Renaissance but also to the economic development of the countries of Western Europe since this time and especially to the development of modern societies and of capitalist international trade competition, concepts that were not available to Las Casas. Therefore, today we have got "more information" than Las Casas and it must be easier for us to deduce what "really happened". Our improved competence in understanding Las Casas' time rests on our perspective, which interprets Las Casas' time from other references. We have learned from the events of the past and we have learned from the errors of historians such as Las Casas. We also understand that most of the information about these travels was kept secret. This is very important in politics and in the world of business as well, and has an effect on technognomy and science. We also know that this confidentiality is only provisional, that in the end the novelty of the reserved information is over and the utility of the confidentiality too. However, we are not better than Las Casas to decide what *really happened*. Much of which was enigmatic for Las Casas, is no longer enigmatic for us but this not means that enigmacy can be solved with experience; because it is *ontological*, it can only be moved around between presentations in hermeneutical circles.

Chapter 2: History as explosion

The traditional presentation about historical time-passing consists in a linear succession of facts in which some aspects of the lifeworld evolve from others in an irreversible manner. The presentation of change is connected to the presentation of gradual or revolutionary linear changes that are irreversible. I believe that this presentation could be considered correct for living organisms, but does not take account of some important aspects of demonstrative presentations about artefacts and technognomies.

For example, we can ontologically assume that “hammer-beating” evolved from “stone-beating”. In this sense, the “hammer-beating-time” could be considered contemporary-time and the “stone-beating-time” could be considered past-time. However, we still beat things with stones and stone-like artefacts. The technognomy of the stone-beating is still been used. That means that relationship between the stone and the hammer cannot be seen as “evolutive” in the same sense that organisms “evolve” from each other.

Of course, the solution to this problem can only be non-testimonial; we must extrapolate the origins of these technognomies “giving these artefacts a voice.” And the voice “says” that these artefacts and technognomies have a common origin in the “fisted hand” and the “fist-beating” in a “fist-beating-time” which is still contemporary-time. We must assume then, that the fist, the stone and the hammer must be interchangeable technognomies, which do not overshadow each other. This family of technognomies and artefacts are contemporary to each other.



Presentation 14: the eidetic explosion of the fist.

The differences between the evolutive presentation and an explosive presentation do not correspond to the differences between the diachronic and the synchronic presentations. Diachronic and synchronic categories are valid for a linear time-passing scale. This traditional metaphor of linear time-passing must be substituted by a new metaphor that takes account of the *instability* of the eidetic activity as time-constituting. We notice that this instability of the tool depends on its grade of specialization. The more specialized a tool is less open is for new changes. In this sense the stone is more instable than the hammer. Time-passing metaphors must then be substituted with metaphors of “technognomic pulse”.

However, linear time passing would still be necessary to present life and its evolution. It would still be necessary to account of presentations of consciousness, the Body, the Ego and the Other in relation to biological evolution. How can then these perspectives be coordinated? One strategy could be that of distinguish *historiognomy* from *historietaxi* (Natural History). I have substituted the suffix “logy” in historiology producing “historietaxi”

(from the Greek *taxis* meaning “arrangement”)¹⁰. *Historiognomy* and *historietaxi* produce *ordognomies* (from Latin *ordo* for ‘order’ and *gnomy* from the Greek *gnomon*, “means of judging or interpreting”) respectively *ordotaxies* to mark this difference.

Historietaxic presentations will continue framing presentations in a linear time scale while historiognomic presentations will do it from the point of view of the pulse of changes in porous frames. Historietaxi will continue with “ages” and “periods” while historiognomy will define eidetic layers. That means that these two approaches are ontologically incompatible; for example, the Stone Age of historietaxi will be very different from the Stone *Propago* (from Latin, meaning a *layer, slip* or *shoot, offspring, race, posterity*; deriving in the English noun “propagation”) of historiognomy. In this sense, the *propagation* of stone technognomies is not something that “was but is no more” but a very instable and ever echoing eidetic explosion connected to the use of stone in praxis. My Big Bang metaphor connects to the following words of Jonnie Eriksson’ about Deleuze’s rhizomatic ordognomy:

[...] Gilles Deleuze and Félix Guattari suggested the *rhizome*, the acentrically distributed root-system, in what David Kolb views as part of an ‘atomistic’ tradition hailing from Epicurus, opposed to the tree-model of thought in the metaphysical tradition of Plato and Aristotle. Even in the 1960s, Deleuze already expressed a critique of how representational thinking establishes [a system of] models and copies which affects how terms (even living beings) are divided in opposites and measured in relation to a principle—a way of thinking over against which he posed the ‘nomadic distribution’ whose contrarily measureless hierarchy is called ‘the monster of all demons’. And the form of this distribution as pertains to living beings is in Deleuze and Guattari the ‘becoming’, the intensive potentiality which constantly displaces the nature of the included terms into a new, animal but shapeless figure: the Anomal. Might we imagine a system for the categories that in this way do not achieve and never will achieve their specific rank, especially as this rank is not exactly *theirs* but that of the norm assumed for them?¹¹

As I see it, historiognomy has nothing to do with time but with *instability*. It is the instability of the different eidetic presentations respects to

¹⁰ I am in debt to my colleague Jonnie Eriksson who has provided me with the term “historietaxi”.

¹¹ Eriksson, Jonnie. ”Aristoteles anomalier”. Glänta 1-11; Göteborg.

our focusing consciousness, which determine the phenomena of history as *gnomy*. The metaphor of a “cultural explosion” associates history to an expansive and rapid proliferation of imagery, from a very intense and simple hypothetic chaotic moment called the Big Bang, to a gradually materialized universe populated by different eidetic substances.

Eidetic Grammar in general

We think with and through presentations understood as “what we imagine” and “how what we imagine is ordered”. With imagery, I refer to “presentations, statues, optical illusions, maps, diagrams, dreams, hallucinations, spectacles, projections, poems, patterns, memories, and even ideas”¹². We think that the meaningfulness of imagery is revealed through a specific ontic knowledge dealing with ordognomic praxis in imagery. I think that the study of imagery is an incursion in phenomenology. As Heidegger noted in *Being and Time* the term “phenomenon” is related to that which is shown:

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.¹³

To study what “is shown”, present the problems of “circularity of thought” that is characteristic for any study of being and is easy to get into difficulties. 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.¹⁴

¹² Mitchell, W.J.T. *Iconology. Image, Text, Ideology*. The University of Chicago Press, 1986; p. 9-10.

¹³Heidegger, Martin. *Being and Time*; 1996, p. 25.

¹⁴ Merleau-Ponty, Maurice. *The Visible and the Invisible*. North-western University studies in Phenomenology & Existential Philosophy, 1968, p. 3.

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.¹⁵ However, 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” is the same for any of its variants. However, which are the answers that imagery gives to the question of history? Whatever we consider as imagery, embodiment depends on the answers given to the foundational variants of *ordo*: What, Which, Where, When, Who, How and Why.¹⁶ We consider that presentations about What, Which, Where, When, Who are *descriptive*, while presentations about How and Why are *demonstrative*. Let us study them separately.

Descriptive grammar

We have said that historical presentations are *demonstrative*. However, they are built on descriptions and therefore can be decomposed into descriptive bricks. These bricks answers to fundamental questions as What, Which, Where, When and Who. It could be assumed that each stage of this development produce a specific family of eidetic presentations defined by the superposition of these bricks into more complex combinations.

We notice that the primary and initial question is derived from the answer to What. The What (used as pronoun, conjunction, adjective, adverb and interjection) is used in the definitions of all the others as if all the others

¹⁵ W.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.

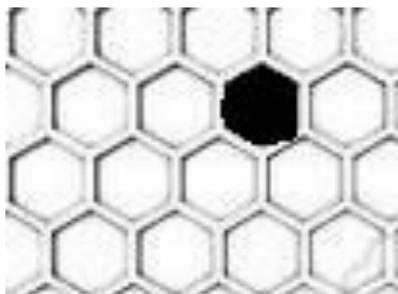
¹⁶ See *topoi* in classical Aristotelian rhetoric.

developed from the “What?” by *multistability*: for example, if we are asking about Where, then we are asking about “at or in what place”, “in what situation or position”, “from what place or source”, “to what place”. Asking about Why is asking about “with what purpose, reason, or cause”; “with what intention, justification, or motive”. In the same way, the question of Which is a question about: “what particular one or ones”. A What-description is one in which only one kind of unit can be grasped. That is the case of Presentation 15.



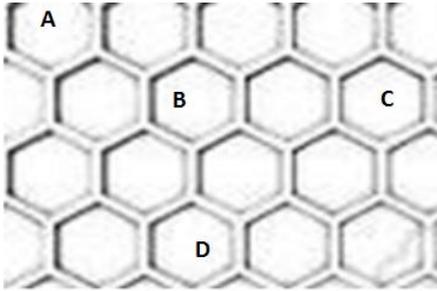
Presentation 15: A What-ordognomy.

Being the answer about What the simplest informative level of an imagognomy, we find that the second in complexity is description that answers to both a What- and a Which question. In this case, at least two ordognomies must be identified in the imagognomy so that the one is *subordinated* to the other. This is the case of Presentation 16 in which at least two different ordognomies are presented.



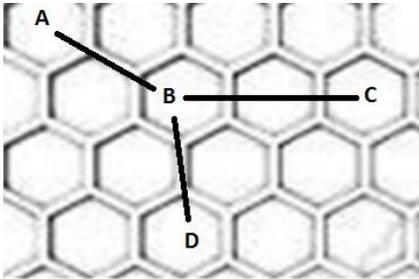
Presentation 16: A What-Which-ordognomy

Both What- and Which descriptions imply the eidity of *disposition* which is definitely answered by a Where-description.



Presentation 17: Where-imagonomy; *disposition*.

Places are related to each other as *measurements* in When-descriptions:



Presentation 18: When-imagonomy; *measurement*.

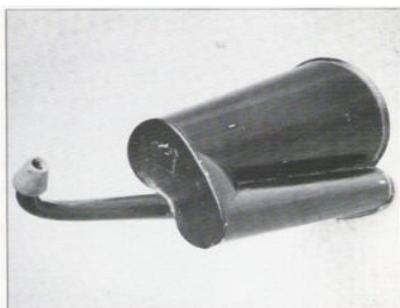
Descriptive presentations including persons and human-like beings are a special case because they introduce the Other:



Presentation 19: The Other in a Who-presentation.

The grammar of history

Let us consider Presentation 20; it presents a What-artefact. What can be said about it? We do not recognize it, but we can answer the question of What saying that it is an artefact “of some kind”. We have no information about its size and therefore we cannot intuitively refer it to the human body and decide if it is or not a kind of tool. Presentation 20 is a pure descriptive presentation and no historical conjectures can be made from it.



Presentation 20:
What-artefact.

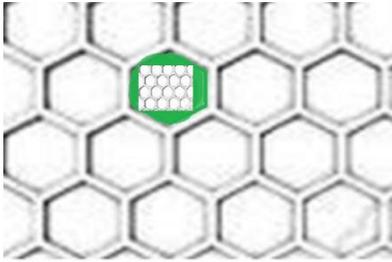
This example is a case of descriptive imagery that is asking the What question of being. This example is a case of descriptive imagery that is asking the What question of being. When I discover that it is not possible to connect this presentation to any other, I *reinterpret* Presentation 20 as it were *demonstrative*. During this stage, the answering of “What-it-is” must be changed making extrapolations to ask instead “How-it-is-used”. Presentation 21 is the resultant of one possible extrapolation introducing the alter Ego and giving us a complete answer about What the artefact is, through the demonstration of How the artefact can be used.¹⁷ Presentation 21 is demonstrative and therefore *historical*.

¹⁷ A “hearing aid”, from Prylen. Fjärde samlingen. 50 gisseföremål i tävlingen Prylen i Sydsvenskan. Mats Henning (red). Björklund & Tönnheim Förlag AB, Sweden, 1992.



Presentation 21: The What-artefact is presented as a hearing aid.

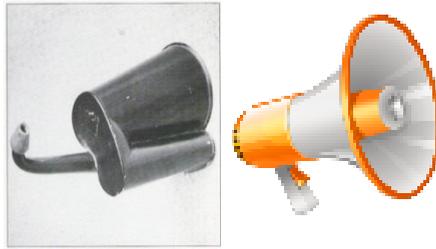
The demonstrative presentation is built on descriptive-bricks, as a “presentation of a presentation” (Presentation 22):



Presentation 22: Demonstrative presentation.

Textlike presentations and the sign

I observed that when the embodied technognomy is “objectivized” in a presentation that *demonstrates* its functionality and it includes the presentation of an alter Ego performing the demonstration, the presentation itself becomes “the artefact”, and the communicative act defines the technognomy as “communicative”. I will give the name of *estrangement* to this process, which includes also the case of seeing myself in a mirror. (In this case, the presentation of the alter Ego implies the estrangement of the Self.) For example, Presentation 23 differs from Presentation 24 in the sense that it is no more the presentation of a technognomy but rather *a technognomic device itself*. While Presentation 23 is *introspective*, Presentation 24 is *projective*.

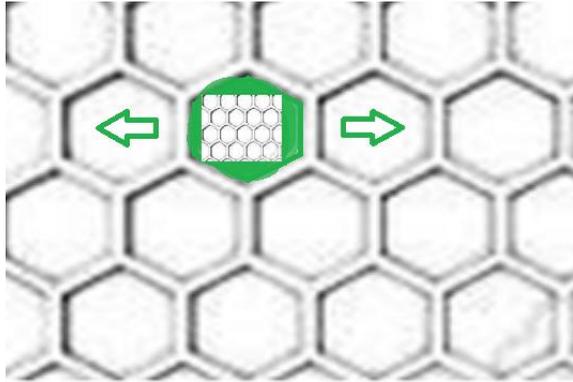


Presentation 23: multistable conjectures.



Presentation 24: Estrangement, embodiment through the Other.

Presentations that undergo “estrangement” lose their internality and assume the role of written signs. In this sense, these presentations are immediately converted to what Ihde classified as the “strong” group of presentations with “text-like” qualities. In his book *Expanding Hermeneutics*, from 1998 Don Ihde introduced the term “visualism” which in my terms corresponds to the process of estrangement of a presentation. The eidetic grammar of such a presentation could be the following (Presentation 25):



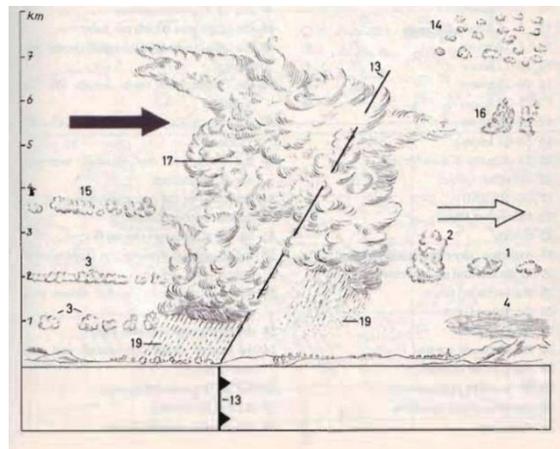
Presentation 25: Explicative presentation.

The introduction of the term “estrangement” aimed to the development of a hermeneutics of science, focusing in the transcription of mental contents to embodied demonstrative actions performed by the Other. These presentations open for answers of questions of Why as bearers of “scientific truth”. Ihde proposes the expansion of hermeneutical studies to the field of technoscience making a phenomenological interpretation of visual contents in the technoscientific discourse. In this project, Ihde concluded that from the earlier times of modernity, hermeneutics grew apart from science, making rationalism, empiricism and later positivism the standard interpretations of science.¹⁸ Ihde structures his project in a “weak” respectively a “strong” research program. Within the frame of a “weak” program for the implicit hermeneutics within science, Ihde distinguished between pure Gestalt features—as the appearance of a presentation against a ground—and within the frame of “strong” program, Ihde included a related, but different set of visualizations, which bear much stronger relations to

¹⁸ “The overarching aim here is to argue that we have often misconstrued what science is and how it operates because, in part, we have for so long ceded the interpretation of science to forms of positivism. In what I call the ‘H-P Binary’—the contestation between hermeneutics and positivism—hermeneutics first finds itself divorced from the sciences, and then by its own historical proponents made semiautonomous with respect to its interpretive activities in such a way that positivism simply became the standard for framing the understanding of the sciences. What I call the ‘P-H tradition’—the phenomenological version of hermeneutics—often itself simply accepted this binary, and until recently tended to ignore attempts to enter the domains of science praxis and the understanding of same.” Ihde, Don. *Expanding Hermeneutics. Visualism in Science*, 1998; p. 3.

what can be taken as ‘textlike’ features”.¹⁹ As I understand this, to Ihde’s “weak group” belongs *depersonalized presentations* as our Presentation 23 and to Ihde’s “strong group” belong presentations that personalize the Other (our Presentation 24).

According to Ihde, the “strong” group of presentations with “text-like” qualities is not the group of “journals, electronic publications and books” generated within the scientific activity which “always remain secondary or tertiary with respect to science” but a kind of hybrid between pure visualizations and texts.²⁰ An example of this presentation could be Presentation 26:



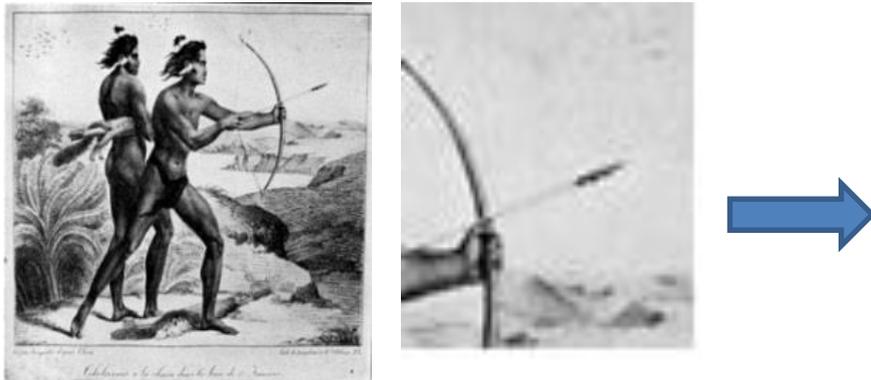
Presentation 26: *Meteorology*. From Duden *Bildwörterbuch* from 1958; p. 25.

I assume that the meaning of these textlike presentations is derived from multistable anthropogonic conjectures, for example among others, from hunting and war scenarios in which the alter Ego is presented “showing how to do” with bow and arrows. However the presence of the

¹⁹ Don Ihde, *Op.cit.* p. 166.

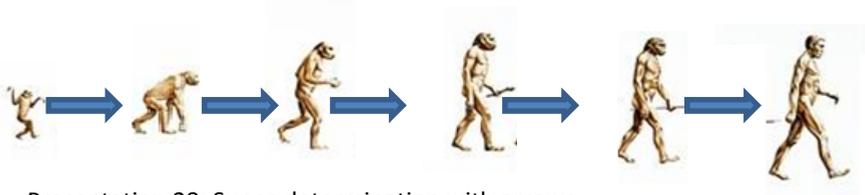
²⁰ “So this is not the textlike phenomenon I have in soul; instead, I am pointing to those analogues of texts which permeate science: charts, graphs, models, and the whole range of ‘readable’ inscriptions which remain visual, but which are no longer isomorphic with the referent objects or ‘things themselves’.” Ihde, Don. *Op.cit.* p.167.

alter-Ego is often precluded, dissimulated behind extrapolations of it. The text-like value of presentations including the alter Ego permits the manipulation of the presentation as signs and of communication as technognomy. I think that there is a clear connection between the following Presentation 27 and Presentation 26 in which the “arrow” is used as a communicative tool:



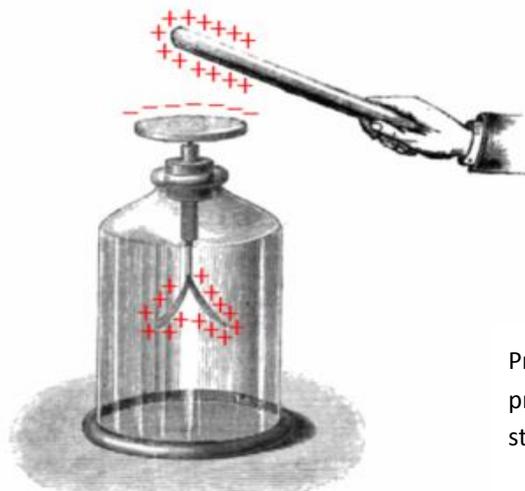
Presentation 27: From hunting and war scenarios to the arrow as a sign.

Presentation 26 belongs to a family of presentations that can be found in pictographs and diagrams and can communicate the dynamic complexity of scientific explanations. Answers of Why are conjectures consisting on the assigning of extern *sign*-presentations to demonstrative presentations, creating a relationship of order (called “causal”) between them. These signs are extern presentations overlaid to the demonstrative presentation. They assume the shape of symbols, numbers or words and have a linguistic character. For example in Presentation 28 the demonstrative account is *super-determined* by the introduction of the arrows.



Presentation 28: Super-determination with arrows.

Another example is Presentation 29 in which the signs are the *pluses* and *minuses* showing the areas of charge saying: “If my eyes had the adequate powers, I could see the electrical charges as pluses and minuses”²¹:



Presentation 29: The “fantastic” presentation of the electrical streaming.

Sign-presentation can be added in many layers directing and re-directing the resulting meaning. Considered by themselves, sign-presentations are extrapolations of other presentations.

Descriptions, demonstrations and the icon

As we have said, the phenomenon of estrangement is only valid for demonstrative presentations. But the limits between descriptions and demonstrations are not easy to delimit. I found an example that can be illuminating: the *portrait*. I consider that the two presentations of the Mona

²¹ The “fantastic” presentation of the electrical streaming in a drawing of a gold leaf electroscope, an antique scientific instrument invented in 1787 by British clergyman Abraham Bennett that detects electric charge. Sylvanus P. Thompson (1881) *Elementary Lessons in Electricity and Magnetism*, MacMillan, New York, p.16, fig. 12.

Lisa of Presentation 30 (A and B) can be considered descriptive because no actions are posited with them. In this sense, every portrait or portrait-like presentation is descriptive. Nevertheless are these two very different. Mona Lisa on the right (B) is “framed”, reinforcing a variant of estrangement. It can be argued that the Mona Lisa of the right (B) is demonstrating an example of human being, or an example of a woman of the 16th Century, or a kind of painting. In this sense, the Mona Lisa of the right (B) is demonstrative and therefore can be considered a technogomic device –an *icon*—aimed to communicate. Another way to put the same could be to consider *introspective* the presentation of the Mona Lisa of the left (A) and *projective* the presentation of the Mona Lisa of the right (B). I think that the framing of A into B transform the introspective presentation A it into the projective *icon* B. In this case, the phenomenon of estrangement “objectivizes” a description rather than an action.



Presentation 30:
Mona Lisa as
introspective
presentation (A)
and Mona Lisa as
projective
presentation (B).

For instance, we can conclude that a descriptive presentation is *introspective* if it is internalized by the Self, or it is *projective* if it externalized by estrangement. In the following case (Presentation 31), the painting of Eugene Bataille posit and action; the action of “smoking a pipe” and therefore this presentation is undoubtedly demonstrative.²² The presentation

²² Eugène Bataille (Sapeck), *Mona Lisa with a Pipe*. Photo-relief illustration for *Le Rire* by Coquelin Cadet, 1887. Jane Voorhees Zimmerli Art Museum, Rutgers, The State University of New Jersey, Herbert D. and Ruth Schimmel Museum Library Fund. (Photo by Jack Abraham).

<http://www.heyokamagazine.com/HEYOKA.3.INCOHERANTS.htm>

is positing the alter Ego as well and therefore it is also a sign but maybe not an icon:



Presentation 31: Eugène Bataille
(*Mona Lisa with a Pipe.*)

For a presentation to convert into an *icon* may be necessary to be a borderline case between introspection and projection.

Textlike presentations and the epistemological engine

When a presentation of a technognomy include the alter Ego and become itself a communicative technognomy—being used now as a sign or signs outside the original context—it is prepared to assume the role of an “epistemological engine”. For Don Ihde, technognomic praxis precedes scientific praxis, and that means in terms of conjectures that a demonstrative presentation must first be converted into a communicative technognomy before it can work as an explanation. “To explain,” is “to showing how” but “linguistically.” In other words, to “showing How” with signs can only be

performed answering Why (with explanations). In a text written together with Selinger, Ihde defines the concept of “epistemological engine” 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.²³

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.

If my conclusions are correct, e.g. the technognomy of the catapult itself could not have worked as an epistemological engine before it becomes a presentation of the alter Ego “using it”. The same can be said for the cases of the mill, the telegraph, the hydraulic and electro-magnetic systems and the digital computer. A technognomy can work as an epistemological engine only after it have been socialized and objectivized as written descriptions or “textlike” presentations.

From Eidetic Motor to Epistemological Engine

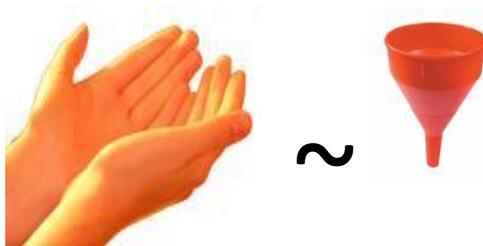
Don Ihde explains multistability as the phenomena in which the “same technology takes quite different shapes in different contexts.”²⁴ Ihde studied different forms of firing an arrow and established that “each of these

²³ Ihde, Don and Selinger, Evan. “Merleau-Ponty and Epistemology Engines”. Springer Publisher, 2004.

²⁴ ”Technologies—Musics—Embodiments”. Don Ihde. *Janus Head*. <http://www.janushead.org/10-1/>; p. 13.

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!”²⁵ 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. And this set of different trajectories is apparently also very ancient.”²⁶ (We can, metaphorically speaking, see a connection between Ihde’s “twang” and our “bang” of history.)

If we assume that technognomies are the consequence of embodiment, and that there is a correspondence between the artefacts and the human body, the study of e.g. the technognomy of the funnel, could be understood as the multistable consequence of an embodied correspondence between the artefact and the positions of the coupled hands. That means that would be possible to invert the process and understand it as an “eidetic reduction” moving from the funnel to the coupled hands.

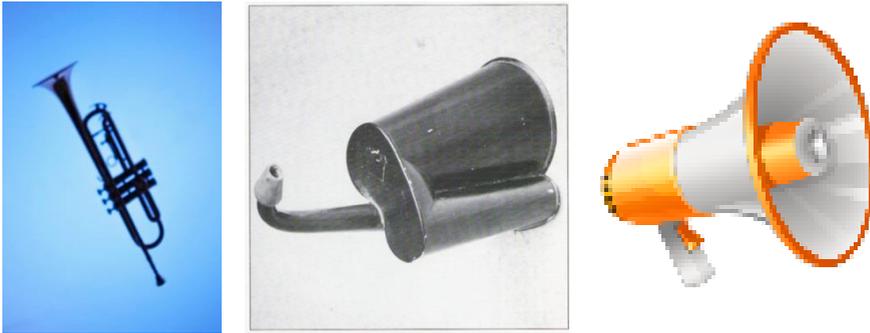


Presentation 32: From the coupled-hands to the funnel.

I understand the relation between the hand and the funnel as *anthropognomonic* in the sense that it implies the process of the estrangement of the introspective presentation of the funnel. Multistability can then be seen, as a kind of eidetic conjecture or “reduction.” Applying the principle of multistability to the pair couple hands/funnel, some other artefacts can be inferred as e.g. the trumpet, the hearing aid and the megaphone.

²⁵ Ibid.

²⁶ Ibid. p. 15.



Presentation 33: funnel-like artefacts; a trumpet; a hearing-aid and a megaphone.

I propose to call a multistable presentation of a technognomy an *eidetic motor*, understanding with this the kind of conjecture that these presentations allow to make. An eidetic motor produces new technognomies and works in an ontological plane *connecting back to an anthropognomic reference*, which makes possible the process of “estrangement”. Only after undergoing the process of estrangement and converting to a sign, can the presentation work in an epistemological plane. So, it is important to distinguish an “eidetic motor” from an “epistemological engine” in the Ihdean-Selinger sense. For example, W.J.T. Mitchell, recognize the connection existing between the picture, the pictogram, the ideogram and the word. According to Mitchell, presentations can be arranged “as a movement from world, to mind, to language, but from one kind of sign to another, as an illustrated history of the development of systems of writing.”²⁷ I reproduce Mitchel’s scheme in Presentation 34:

²⁷ Mitchell, W.J.T. *Iconology. Image, Text, Ideology*. The University of Chicago Press, 1986; p. 27.

 <i>Picture</i>	 <i>Pictogram</i>	 <i>Ideogram</i>	<p>MAN</p> <i>Phonetic Sign</i>
Presentation 34: W.J.T. Mitchell's translation of speech into a visible code.			

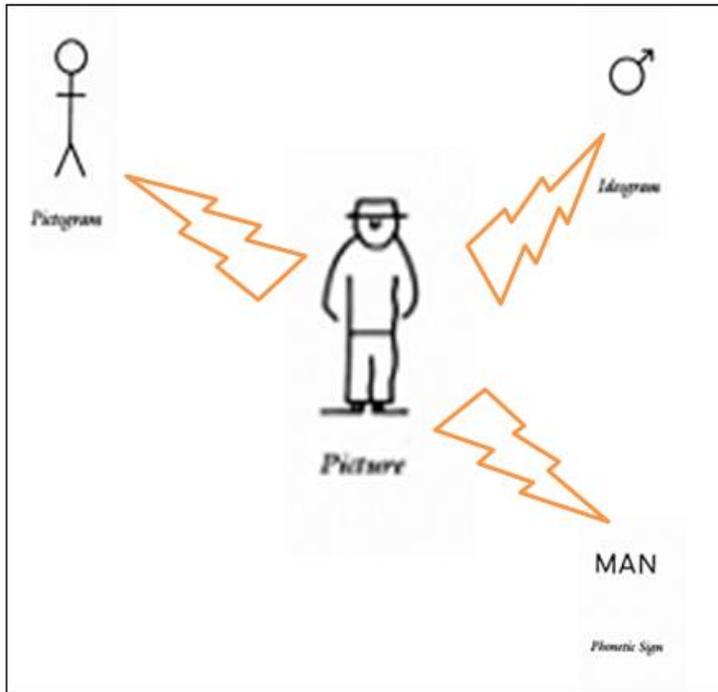
About his scheme W.J.T. Mitchell wrote:

These illustrations should suggest another “literal” sense of the notion of verbal imaginary – the most literal of all, clearly, in that it denotes *written* language, the translation of speech into a visible code. Insofar as language is written, it is bound up with material, graphic figures and pictures that are abridged or condensed in a variety of ways to form alphabetical script.²⁸

In Mitchell's scheme, the departing anthropomorphic presentation (the picture to the left) corresponds to an anthropomorphic presentation. Only this presence can open the eidetic material the character of a sign. However, this illustrated history of the development of systems of writing is in fact the presentation of the multistability of the sign. It follows from Mitchell's scheme that the presentation of the alter Ego (picture on the left) works as an *eidetic motor* opening for several multistable solutions. Pictogram, ideogram and phonetic sign are in fact alternative multistable conjectures from the picture –which is the presentation of the alter Ego.

However, W.J.T. Mitchell's Presentation 34 implies some kind of necessary *linear* order in a chain of conjecture moments which in fact cannot be deduced from multistability: from picture to pictogram, to ideogram and to sign. More appropriate would be Presentation 35 of an explosion of possibilities:

²⁸ Mitchell, W.J.T. *Ibid.*



Presentation 35: Multistability and the Big Bang of the sign: Picture, pictogram, ideogram and phonetic sign.

The ideogram, the phonetic sign and the pictogram can be seen as some of the coagulated forms derived from the multistability of eidity in general, but certainly not the only possible and not necessarily ordered in a line. One source of eidity is derived from the technognomic powers of the hand. For example, Presentation 36 posits some examples of eidetic motors.



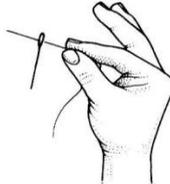
1. Hook grip



2. Scissor grip



Five-jaw chuck



Two-jaw chuck
pad-to-pad



Two-jaw chuck
pad-to-side

3. Precision grips



Squeeze grip



Disc grip



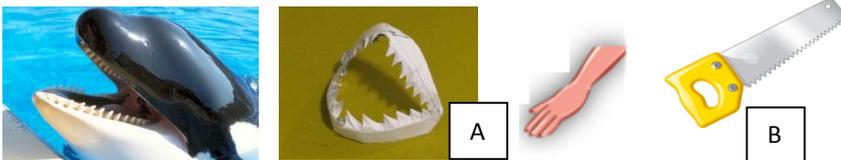
Spherical grip

4. Power grips

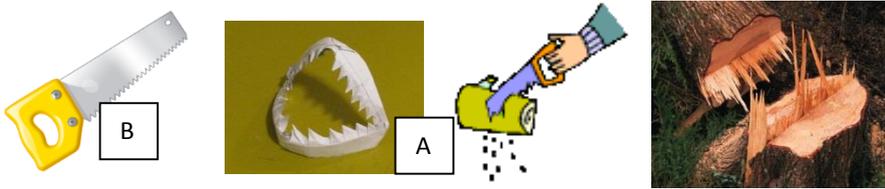
Presentation 36: From Tallis, Raymond. *The Hand. A Philosophical Inquiry into Human Being*. Edinburgh University Press, 2003; p. 26.

Chapter 3: Conjectural embodiment

An eidetic conjecture is the resulting meaning of a conjunct of many presentations. (*Conjecture*, form late 14th Century, meaning “interpretation of signs and omens;” from Latin *coniectura*, meaning “conclusion, interpretation, guess, inference.”) I will call the resulting meaning of a conjecture a *synapse*. Synapse is embodiment at the eidetic level. Embodiment is always concrete and can only be the results of the relationship between presentations connected through some fundamental accesses that I will call “prompts”. I will call *promptitude* the rules of access that determine the kind of embodiment proper to each synapse. In a conjecture, descriptive and demonstrative presentations can be freely combined; however, some conjectural prompts are typically descriptive and other typically demonstrative depending on the results. While some conjectures are made to support a description, others are made to support demonstrations. Presentation 37 and Presentation 38 posit the same presentation-links “A” and “B” but with different consequences. Presentation 37 posits a descriptive conjecture while Presentation 38 posits a demonstrative conjecture.

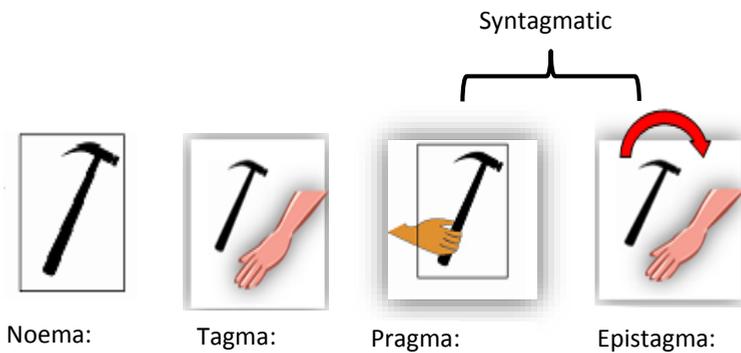


Presentation 37: Describe a handsaw.



Presentation 38: How to use a handsaw.

I found four prompts to conjectural embodiment. They are the *noema*, which is the presentation itself; the *tagma*, which is the presentation of the measure or congruence between presentations; and the *syntagmatic* group that include the *pragma*, which is the presentation of the usability of the noema according to the tagma, and finally the *epistagma*, which is the presentation that *explains* the embodiment process. (Both the pragma and the epistagma are constructed on *signs* and therefore can be considered “syntagmatic”.) I believe that each prompt open for a specific kind of synapse (Presentation 39).



Presentation 39: The prompts of embodiment.

Eidetic conjectures combine descriptive and demonstrative presentations allowing historical presentations to support descriptions and vice versa, descriptions to support historical presentations.

Noematic synapse

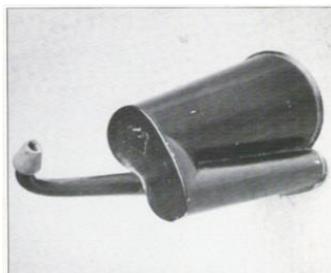
The first prompt in my list is the *noema*, which I understand as the “thing itself” or the “action itself”, posited to consciousness as a unit, answering or asking the question of What. The noema is the simplest brick with meaning created by the Big Bang.



Presentation 40: The female sex in Tito Bustillo’s caves in Asturias.

The noema can be descriptive or demonstrative but is always a mono-presentative conjecture that is *terminal*, in the sense that its meaning is interior to the presentation. For example, Presentation 40, which posits the female sex, is an expression of Palaeolithic art, which do not need more presentations to be understood. To be terminal it needs to be anthropognomic. Anthropognomic presentations are the *repertoire* of eidetic contents that constitute humans as just “humans”. Anthropognomic noematic presentations constitute the eidetic archive of human experience.

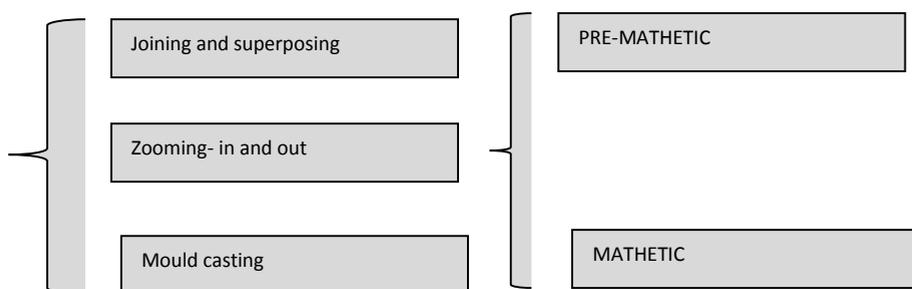
Presentation 41 at the other hand is not noematic because its mono-presentativeness is illusory. It does not connect to anthropognomic experience but open immediately to other forms of promptitude that could explain it. It must then be considered the *missing link* of an unknown conjecture.



Presentation 41:
The missing link of an
unknown conjecture.

Tagmatic synapse

As *tagma*, I understand the docking properties of the presentations units of a conjecture. “Tagma” is the term I choose (I call this promptitude *tagmatic*; from the Greek, meaning “something arranged”, from *taxis* “order” and *tassein* “arrange”) to describe the embodiment process (the “how to dock”). I found three main types of tagmatic promptitude: *joining and superposing*, *zooming- in and out*, and *mould casting* (Presentation 42). The docking of two or more presentations happens with different levels of accuracy. I will recognize two levels of accuracy only: the *pre-mathetic* and the *mathetic* levels (‘mathetic’ is my term, from *mathesis*).



Presentation 42: Tagmatic types and levels of accuracy.

The tagmatic synapse is descriptive in the sense that it is positing a disposition. They can include the human body as icons. Even if we are capable of using a tool because we are aware of the tool’s usability through

experience, this usability as praxical knowledge says nothing about the congruence between the tool, the body and the world in the embodiment process. For instance, “doing something with a hammer” means “knowing how to dock the hammer with the hand and the nail”, and that implies knowing which other tagmata (e.g. nails) are congruent with the hammer’s tagmacy. For instance, how do we discern that it is impossible to nail up fluids? We know this through because our general experience of the lifeworld *inner congruency*. A chain of tagmatic presentations is terminal when the congruency with the human body or its parts is posited. For example, in Presentation 43 a tagmatic synapse is posited with the docking of the human hand as the terminal anthropognomic presentation.



Presentation 43: tagmatic synapse consisting on a series of contiguous presentations .

Let me introduce now the formula of the tagmatic conjecture: it will be [?-to-dock]. The formula condensed the totality of questions: [What-to-dock]; [Which-to-dock]; [Where/When-to-dock]; [Who-to-dock]; [How-to-dock] and [Why-to-dock]. In this kind of synapse, the process is focusing on embodiment as connectedness only. The [?-to-dock] moves *inside* the sphere of the series of the presentation of an action as a series of photographs that decomposes that action.

Syntagmatic presentations: *pragmatic* and *epistagmatic*

Earlier in this book, I observed that when the embodied technognomy is objectivized in a presentation that *demonstrates* its functionality and it includes the presentation of an alter Ego performing the demonstration, the presentation itself becomes “the artefact”, and the

communicative act defines the technognomy as “communicative”. I gave the name of *estrangement* to these phenomena. For example, Presentation 44(A) differs from Presentation 44 (B) in the sense that it is no more the presentation of a technognomy but rather *a technognomic device itself*. While Presentation 44 (A) is *introspective*. Presentation 44(B) is *projective*. A presentation embodied or not their posited units. For example, Presentation 44 (A and B) are positing two demonstrative presentations, but Presentation 44 (B) contents *more information* that Presentation 44 (A) because it posit the docking between the tools and the hand.

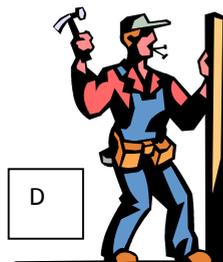


Presentation 44: Two historical presentations; while presentation (B) is embodied, presentation (A) is not.

Presentation 44 (A) posits the action that docks the hammer and the nail while Presentation 44(B) posits the action that docks the hammer, the nail *and the human hand*. I have observed that the more *relevant* embodying information a demonstrative presentation has, the more *it compels to act*. We could say that the propaedeutic and heuristic value of a presentation increases when it clearly posits How-to-dock with the human body. This can be put in other words; it is possible to consider that with relevant *embodying* information, the presentation of an action becomes *itself an action*. For instance, Presentation 44(B) is a sign while Presentation 44(A) is not.

I said that the positing of embodiment is both an expression of *estrangement* and an expression of *dramatization* **Fel! Bokmärket är inte definierat..** However, which are the specific differences between the phenomena of estrangement and the phenomena of dramatization? A closer study of the propaedeutic of a demonstration confirms that the relevance of

embodying information is decisive. We notice that Presentation 45 (D) is *dramatic* (in the sense that it opens for the *re-presentation* of the action) and that it contains more than the information that is necessary to perform the action. At the other hand, Presentation 45 (C) is *gestural* (it emphasizes the *introspective* perspective).



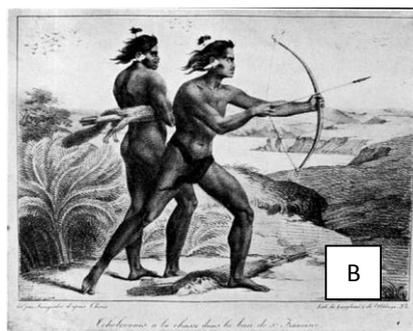
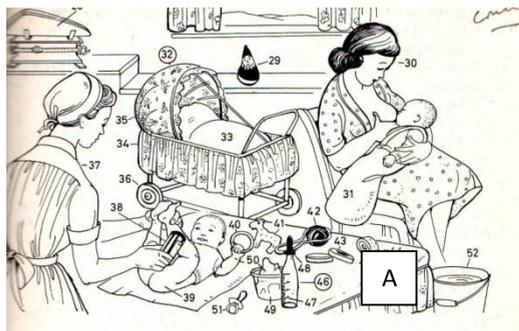
Presentation 45: Presentation (C) is *gestural* (a *gesture*) while presentation (D) is *dramatic* (a *re-presentation*).

It is possible to conclude then, that both Presentation 45(C and D) are signs but Presentation 45 (C) is closer to the *performance* of the posited action. I will call Presentation 45 (D) a *sign* and Presentation 45 (C) a *gesture*. “Gestures” are then the kind of presentations that invite to actions. These are the typical presentations of manuals and handbooks. A sign is a demonstrative presentation that posits the embodiment process through an alter Ego (the estrangement of the demonstration) including more or less *irrelevant* information about the posited action. The specificity of the sign is that which opens for performance, especially for performance as *communication*.

Pragmatic synapse

Further, I understand as *pragma* the *usability* of the noema and that the meaning of the pragma is just its usability. Pragmatic conjectures are *demonstrative* and never descriptive. For instance, the imagonomies of Presentation 46 are signs and not gestures however, both can be used with propaedeutic goals. My formula for this promptitude is [to-do-?] to express

synapses based on the *function* of technognomies. These conjectures are historically connected to anthropognomic pragmata that are an essential part of the heritage of humankind. Presentation 46 (B) answers the question of [to-do-?] to use a bow and an arrow and is referring to the propaedeutic of the action. Presentation 46 (A) answers also the question of [to-do-?] to change diapers and demonstrate one important moment of the propaedeutic of the praxis of nursery. Both belong to the common anthropognomic heritage revealed through personal and collective human experience and their content is immediately revealed as [to-do-?] synapse.



Presentation 46: (A) an (B) [to-do-?]-conjectures of *projective* character built on signs not on gestures.

A final comment: pragmatic conjecture works through the *integration* of the noemata that constitutes the substance of the presentation. The woman is not only “besides the baby” in Presentation 46, she is also “feeding the baby”. Some *Élan Vital*, which goes through the whole presentation, makes a pragmatic conjecture an indissoluble unit.

I recognize two kinds of pragmatic conjectures: *introspective* and *projective* depending on the positing or not of the Other as alter Ego. If some of the human body parts are posited in a presentation, it is projective, otherwise it is introspective. Therefore, to convert a demonstrative presentation in a sign is enough for it to posit at least some part of the human body (of course, a mirror presentation of my own body works as a presentation of the alter Ego as well).



Presentation 47: Pragmatic conjectures: *projective* at the left and *introspective* at the right

Therefore, Presentation 46 is pragmatic and *projective* in both cases (A) and (B) and must be interpreted as *signs*. Presentation 47 (A) is also pragmatic and *projective* but Presentation 47 (B) instead, is pragmatic but *introspective* and is not a sign.

Epistagmatic synapse

Epistagma or epistagmatic synapse (from Greek *episteme*, meaning “knowledge” and *tagma* meaning “something arranged”), consists on the assigning of *signs* to the presentations, creating a relationship of priority (called “causal”) between them. I will use the formula [because-?]. These signs, which are extern presentations based on authority, assume the shape of symbols, numbers or words, docking with the units of the conjecture externally and transforming the original tagmatic/pragmatic conjecture into something new with a text-like character. For example in Presentation 48 the imagognomies are *super-determined* by the imagognomies of the arrows.



Presentation 48: epistagmatic synapses consisting on a series of [because-?] presentations .

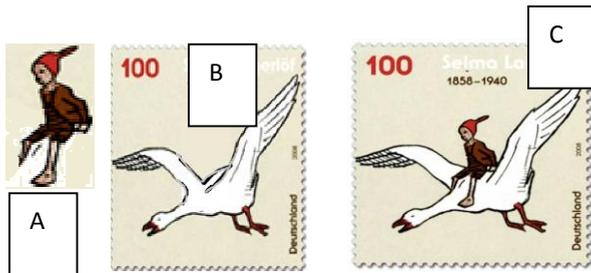
Chapter 4: Tagmatic conjecture [?-to-dock]



Tagmatic synapse consists on a series of imagogonies based on embodiment. They are built on three types of series of presentations: *joined series*, *zooming-in and out series* and *mould casting series*; and two grades of accuracy: *mathetic* and *pre-mathetic* (my term, from *mathesis*, meaning “measured”).

Tagmatic conjectures built on *joined series*

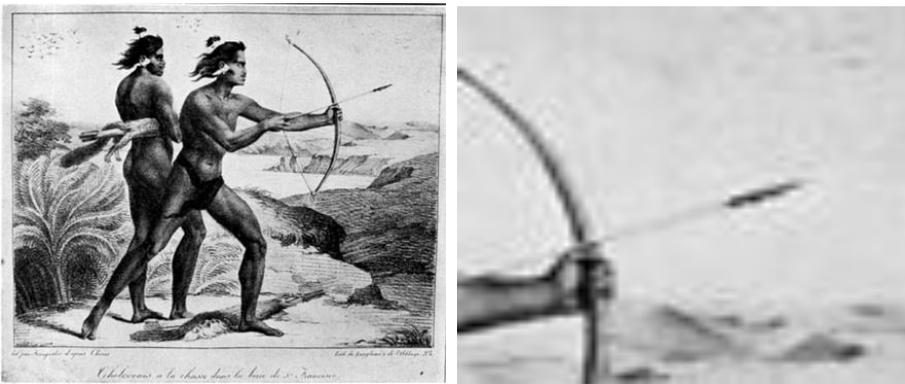
The following Presentation 49 posit the three steps of a tagmatic synapse built on joined series. The resulting presentation “C” is a demonstrative presentation which is tagmatic congruent but in a pre-mathetic (my term, from *mathesis*, meaning “measured”) way. You know “how to dock A and B” without worrying about the pragmatics aspects of joining this material into “C”. The consequence is that many tagmatic conjectures imply historical presentations that posit fantastic actions (Presentation 49).



Presentation 49: Selma Lagerlöf's, *Nils Holgersson*. “A+B=C”; the construction of a demonstrative presentation by joining its parts in a tagmatic conjecture.

Tagmatic conjectures built on *zooming-in and out series*

Secondly, zooming-in and out series are these in which the eidetic process moves from the whole presentation (the departing-presentation) to the presentation *of one of its parts* (the arriving-presentation). For example, the departing-presentation of the left in Presentation 50, can be zoomed-in to the imagognomy on the right. Zooming-in presentations are *dissections* (L. *dissecare* “cut in pieces”) a kind of presentation that arises throughout the reduction of the original. In Presentation 50, the imagognomy of the right is one possible [? -to-dock] conjecture of the imagognomy of the left. One important property of the conjectures built on [? -to-dock]-imagognomies is that they are *pure connectedness*. They posit a *connectandum* (the presentation on the left) and a *connexionem* (the presentation on the right that works as a bridge to other presentations).



Presentation 50: Creating meaning by tagmatic conjecture; *connectandum* on the left and *connexionem* to the right.

We can say that Presentation 50 is a *tagmatic conjecture* because we notice that we can infer one from the other by zooming-in or out the departing-presentation. Another example of zooming-in synapse is in Presentation 51. Observe this the zooming-in process is *eidetic* and not *photographic*. It also pre-mathetic and therefore the door-handle of the door at the left, does not need to be the same as the door-handle posit on the right and that neither the *size* of the artefacts matter.



Presentation 51: Zooming-in conjecture.

Tagmatic conjectures built on *mould casting series*

Embodiment can be illustrated as *mould casting* as it is presented in Presentation 52. In this case, the zooming process matches the body making an exact inverse copy of it. This property of this tagmatic conjecture is essential for the development of clothes, tools and furniture. This conjecture is built on the mould or negative stamp and the matching part of the body as the anthropognomic terminal meaning. Later, the mould will be used to re-create the embodiment process. Presentation 52 is about a conjecture built on mould casting series with *mathetic* accuracy.



Presentation 52: Waste mould casting conjecture.

If we consider the human body as the *primary* mould, we can give

some of the artefacts created by this primary mould the category of *secondary* artefacts; these are aimed to *dock* with the whole body. That is the case of the bed, the divan, etc. In this case, every point in the human body corresponds to a point of the secondary artefacts. We call this docking point-to-point (or 1-1-congruence). A second group, the seat-type-group of artefacts, shows approximately a $\frac{1}{2}$ - $\frac{1}{2}$ -congruence with human body. This group includes chairs, couches and their like. The docking between the body and the secondary noemata create families and sub-families of artefacts. Some families are related to a third group of artefacts and not to the body as the primary group of artefacts does. That is the case of the shelf-type-group, which includes the bookcase and the hat-rack. The related group of tertiary artefacts includes books and hats. While hats are imprints of the human head, books are congruent with the hand by contiguity. We could say that the bookcase has some definable congruence with each book on the self.

Furthermore, when a tool artefact is meant to be applied on the human body, it becomes secondary; that is the case of the comb and of the toothbrush. However, that is not the case of cutlery, the knife, the spoon and the fork or that of a drinking glass, because those artefacts work as ordinary tools, docking with the hand and working “from” the body and directed to another tertiary artefact. Cultural artefacts as food, drinks and medicines, work directly at the *inside* of the body, in a kind of *internalisation* of the process of *docking*. When a tertiary artefact works on another tertiary artefact, we could call this a *peripheral* artefact. These peripheral artefacts as the nail, which is not thinkable without the hammer or the piece of wood, make possible the process of nailing up a shelf.

The *tagmacity* –that is, an artefact’s relative [?-to-dock] promptitude – is determined by the moment of that piece in the genealogical process of the development of artefacts after the Big Bang; more [?-to-dock] alternatives, means more primitiveness. We can grasp two directions in this eidetic explosion: first, a tendency to *loose mass* winning *in mobility* and second a tendency to a *multiplication* of artefacts through a *specialisation* of functions. We can also see an increment of the complexity of *tagmacity* with the consequence of the reduction of the eidetic variation of [?-to-dock] conjectures.

One important task of the [?-to-dock] conjecture is that of *reverse engineering* of the path-development of an artefact. A cabinet or closet is different from the bookcase not because of their What-to-dock –which is

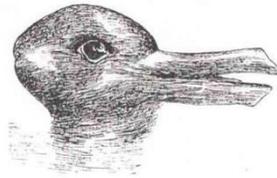
still very imprecise and undifferentiated—but because the kind of Why-to-dock that they are intended to satisfy. However, in the same tagma-family, a closet is more pragmatically appropriate to save books than a bed or a couch. Kinship between those artefacts depends on their promptitude to substitute each other in connection with the tagmatic project in which they were created. The promptitude to substitute each other reveals the genetic process underlying the artefact’s genealogy. If we accept that this tagmatic explosion follows a process from the simple to the complex, then it is acceptable to think that the “first” piece of furniture of humankind was the simple flat surface of the “floor” of the cave. Because a bed can be used as a shelf but a shelf cannot be used as a bed, we can deduce that the bed is more primitive than the shelf. The increment of tagmatic complexity makes docking increasingly accurate and the docking between the human body and artefact less intuitive. This increment achieves through the manipulation of the tool, making it more complex and more similar to a machine. Modern tools are so specialised that they lose in ontological possibilities and therefore can rarely be used with other purposes. Because the multistability of the artefact is the essence of tagmacy, the increment of tagmatic complexity reduces the multistability of the tagmatic solutions. The [?to-dock] conjecture as we understand it, reveals the existing relationship between artefacts and the human body, in connection to human praxis.

Resemblances: pre-mathetic congruence

To the tagmatic group of conjectures, belong the conjectures called “resemblances”, which refer to an imagery of *joining*, *zooming* and *mould casting* when they are the results of a *rough guess*. It is possible to find these three conjectural variants in pre-Galilean science. Resemblances are pre-mathetic solutions in which the problem of docking is inaccurately posited. It can be the case of a tentative solution, still rough enough because the lack of experience, as in a sketch or in a first drawing.

If we compare our three tagmatic categories with Foucault’s division of conjectures based on resemblance, it is possible to find some similarities. Foucault divided resemblance in four specific types: *Convenientia*, *Aemulatio*, *Analogy* and *Sympathy*. *Convenientia* (suitability or fitness) can be explained as

cases of tagmatic conjectures built on *joined series of presentations*. Defining zones so “close to one another to be in juxtaposition; their edges touch, their fringes intermingle, and the extremity of the one also denotes the beginning of the other.”²⁹ b) *Aemulatio* (context or circumstance) can be explained as cases of tagmatic conjectures built on *zoomed series of presentations*. *Aemulatio* according to Foucault is “a sort of convenience that has been freed from the law of place and is able to function, without motion, from a distance”.³⁰ Finally, *Analogy* and *Sympathy* can be cases of tagmatic conjectures built on *complex combinations of series of presentations*. But, what means with “resemblance”? For example, Presentation 53 is the consequence of mould casting of the heads of two animals: the duck and the rabbit. Is this a case of resemblance? In any case, this is clearly a case of tagmatic congruence. The presentations of the head of the animals have been *manipulated* to create a pre-mathetic congruence of the presentations.



Presentation 53: Rabbit/duck The duck-rabbit by Joseph Jastrow, 1899.

The plant *Sansevieria trifasciata* (Presentation 54) is named differently in different cultures depending on the attributed tagmatic values: It is called the “snake plant”, or “mother-in-law's tongue”, or the “tiger's tail”, or the “sword-of-Saint-George”. Being enough imprecise, “the snake”, “the tongue”, “the tail” and “the sword” could be the referential mould of such a plant. Conversely, it is possible to imagine a leaf of the plant used to create a

²⁹ “This word really denotes the adjacency of places more strongly than it does similitude. Those things are ‘convenient’, which come sufficiently close to one another to be in juxtaposition; their edges touch, their fringes intermingle, the extremity of the one also denotes the beginning of the other. In this way, movement, influences, passions, and properties too, are communicated.” *The Order of Things*, p.17.

³⁰*The Order of Things*, p.19.

mould to imprint snakes, tongues, tails and swords if the mould is enough inaccurate.



Presentation 54: *Sansevieria trifasciata*: “Snake”, “tongue”, “tail” and “sword”.

Making conjectures through pre-mathetic congruence is the typical promptitude of the eidicity of “resemblance” which is associated with science until the Renaissance. Nevertheless, the conjectural form is timeless. The meaning of the conjecture in [?-to-dock]-imagognomies is that of *forcing* uniformity, continuity and connectedness; consequently:

- 1) The science based on resemblances until the Renaissance can be considered a *period* in a historical development of knowledge (from the point of view of Natural History) but also an *ever-present period* or cluster of *eidetic propagations* in which pre-mathetic [?-to-dock] eidicity flourish (from the point of view of Gnomonic History)
- 2) From our point of view, the characteristic difference between the Renaissance and the emerging eidicity of the science of Galileo and his time is not that the new science suspended the use of tagmatic conjectures, but the Galilean expanding use of mathetic congruence, opening for the understanding of the tagmatic presentation as *proportionality*.

A god example of resemblance could be the *Vertumnus* of Giuseppe Arcimboldo (1527–1593) in which resemblance is created thorough the tagmatic congruence between imagognomies of natural objects and humans (Presentation 55):



Presentation 55: *Vertumnus*, a portrait of Rudolf II. Skokloster Castle, Sweden.

Presentation 55 is the last presentation of a series of joining presentations of fruits and vegetables manipulated to match the human body in a tagmatic conjecture.

Bio-tagmatic anthropognomies: physiognomy and phytognomy

Bio-tagmatic conjectures are [?-to-dock] conjectures based on anthropognomies and characterized by its connectivity towards pre-mathetic series of joining and zooming-in and out the parts of the animal, the vegetal and the human body. To the group of bio-tagmatic anthropognomies belongs the science of *physiognomy*, which is based on anthropognomic conjectures supported on congruencies of human and animal features. These can be both physical and spiritual. The study of physiognomy was well established in classical Greek as the *Physiognomonics* attributed to Aristotle confirms it.³¹ In the *Physiognomonics* we can read:

Mental character is not independent of and unaffected by bodily processes, but is conditioned by the state of the body; and contrariwise the body is sympathetically influenced by affections of the body. The former of these propositions is well exemplified by drunkenness and

³¹ *The Works of Aristotle*, translated into English under the Editorship of W.D. Ross M.A. Volume VI, *Opuscula*, by T. Loveday, S. Forster, L.D. Dowdall and H.H. Joachim. Oxford at the Clarendon Press, 1913.

sickness, where altered bodily conditions produce obvious mental modifications, and the second by the emotions of love and fear, and by states of pleasure and pain.³²

To define these aspects Aristotle describe different methods:

The first method took as the basis for physiognomic inferences the various genera of animals, positing for each genus a peculiar animal form, and consequently upon this a peculiar mental character, and then assuming that if a man resembles such and such a genus in form he will resemble it also in body. Secondly, those who adopted the second method proceeded in the same way, except that they did not draw their inferences from all kinds of animals but confined themselves to human beings: they distinguished various races of men (e.g. Egyptian, Thracian, Scythian) by differences of appearance and of character, and drew their signs of character from these races just as others did from animal genera. The third method took as its basis the characteristic facial expressions, which are observed to accompany different conditions of mind, such as anger, fear, erotic excitement, and all the other passions.³³

We can conclude that resemblances in general are built on zooming-in conjectures supported by joining series as Della Porta's physiognomic studies posit it in Presentation 56³⁴:



Presentation 56:
Giambattista Della Porta,
De humana physiognomoniam
libri III.

Let us here follow the conjectural chain. The tagmatic conjectures built on zooming-in series and posit in Presentation 58 and Presentation 57 do not easily support resemblances. However, Presentation 59 does it.

³² *The Works of Aristotle*; p. 805a.

³³ *The Works of Aristotle*; Ibid.

³⁴ Giambattista Della Porta, *De humana physiognomoniam libri III* (Vico Equense: Apud Iosephum Cacchium).



Presentation 58: The head of the man and the head of the dog are very different.



Presentation 57: The neck of the man and the neck of the dog are very different.



Presentation 59: the resemblance is built on a zooming-in of some of the features of the involved presentations.

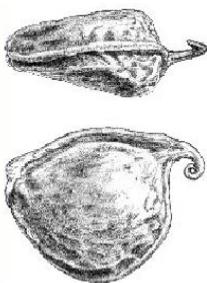
This means that zooming-tagmacity transform *anything* into a resemblance. The science of physiognomics is a science of pure connectedness exploring the limits of the anthropognomic world. Anchoring the natural world into anthropognomic common sense, the world became meaningful.

- ***Phytognomy and signature***

I will argue that Foucault's *signatures* are not a case built on resemblance but on praxis. According to Foucault, a *signature* in a plant is a *hidden sign present in the plant*, which tell us that the plant is good for the body. In the following example, the plant named *aconite* posit a signature according to which the “tiny dark globes set in white skin line coverings”³⁵ are good for

³⁵ Freedberg, David. p. 43.

the human eye because they resemble the eye (Presentation 60).³⁶



Presentation 60: The aconite; *Ranunculus napaceus*.

These “tiny dark globes” are matched with the human eye (Presentation 61).



Presentation 61: The phytonomic conjecture by zooming and joining series.

Signatures must be “read” in the following way: “you read from the surface what lay beneath—the hidden secrets and essences of things. In phytognomy, the medicinal powers of plants were taken to be directly related to the way they looked. [...] Thus a plant, like the walnut, was god for the cure of a whole range of ailments in the head (because the similarity between the kernel itself and the brain), and plants with hairy roots served to

³⁶ “Whole sets ”signatures” existed to relate things and words, as in Foucault’s example of the affinity between the plant called aconite and diseases of the eye: this unexpected affinity would remain in obscurity if there were not some signature on the plant, some mark, some word, as it were, telling us that it is good for diseases of the eye. This sign is easily legible in its seeds: they are tiny dark globes set in white skin line coverings whose appearance is much like that of eyelids covering an eye.” Here the “sign” is not a word but a resemblance, and Foucault is talking about the Renaissance doctrine of signatures, especially as it was apparent in magic, demonology, and astrology. In all the examples he gives, he tries to show that knowledge consisted “in relating one form of language to another form of language; in restoring the great, unbroken plain of words and things, in making everything speak.” G. S. Rousseau, *Enlightenment Crossings. Pre- and Postmodern discourses: Anthropological*. Manchester University Press, 1991; page. 43.

alleviate baldness and other conditions affecting one body's hair.³⁷

The resemblance between some of the plants parts and the parts of the human body can be explained by *zooming and joining tagmacy*, but how can the connexionem to medical uses be explained? I believe that while the similarity of two imagognomies can be explained with *tagmatic* conjecture, the uses of the plant are rather the results of *pragmatic* conjectures. Signatures then, are not conjectures based on descriptions but on praxis. That a plant can be used to cure some disease demands that the patient of the medical cure get *some benefits from the plant*. At least, the medical treatments *must not be detrimental* for the patient; otherwise, it would not be implemented more than some few times. My conclusion is that the medical values of plants and animals are not based on tagmatic conjectures (resemblances between plants, animals and humans) but on the experience of using a plant or animal to cure some human disease (Presentation 62). That resemblance could be the start point to such praxis is possible, but not necessary.



Presentation 62: A demonstrative presentation or *signature*.

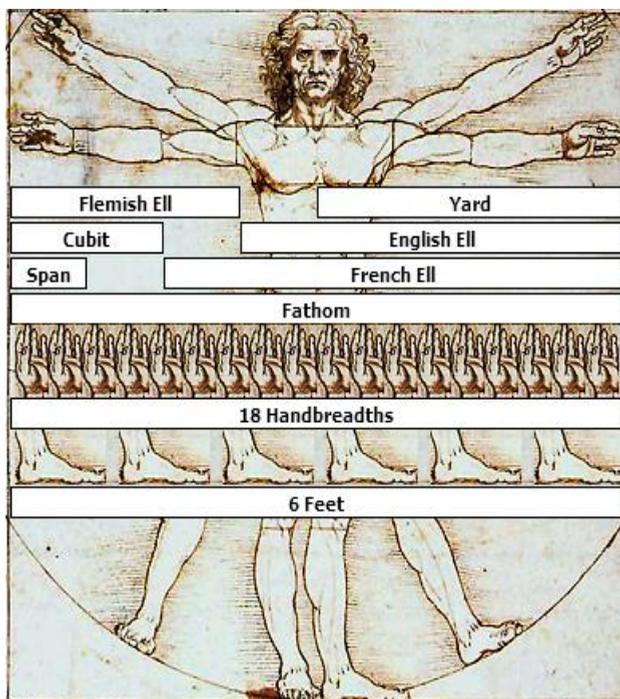
Signatures, then are signs and even gestures, that answers [to-do-?]-conjectures and even [because-?]-conjectures.

Tagmatic-mathetic promptitude: *measurement*

A specific form of tagmatic conjecture is the *mathetic* conjecture that relies on Which, Where and When-to-dock conjectures. Mathetic conjectures are conjectures make on *specific* connectedness. Which, Where

³⁷ Freedberg, David. *The Eye of the Lynx. Galileo, his friends, and the beginnings of Modern Natural History*. The University of Chicago Press; 2002; p. 72.

and When-to-dock conjectures can be done when the What-question has been answered with a This, and Here and Now-answer.



Presentation 63: Mathetic conjecture as *measurement*.

A Which-to-dock conjecture is always particular, never general; it produces accuracy, exactness, fitness, certainty. It is only possible with a reduction of a What-to-dock-conjecture. The paradigmatic case of mathetic conjecture is *measurement*. We see that measurement arises from the connectedness of the world as a typical consequence of *matching* the world with the *human body*. That can be easily demonstrated referring to any of the measurements units chosen to create *order into connectedness* as in Presentation 63. Certainly, the systematic use of *quantitative congruity* to make conjectures mediated by an ideal list of numbers, which introduced the notion of proportionality with the human body, implies the presence of the alter Ego in the conjectural chain and therefore the tagmatic conjecture must include demonstrative presentations. However, these are still tagmatic conjectures because they are based principally on pure connectedness. The reference is

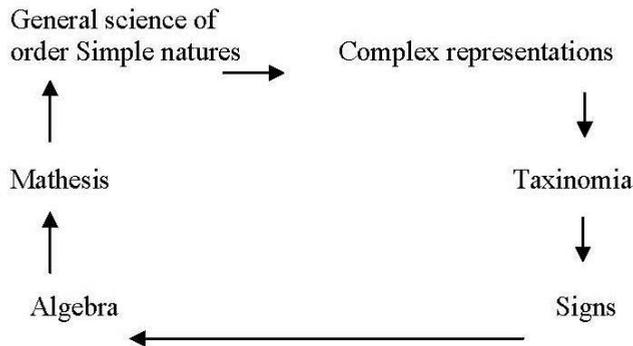
still made to the human body but the scale is numeric. If the conjecture was earlier built between the presentation of a plant's leaf and the human hand; now the size of the leaf is compared with the size of the hand.

In Antiquity and until the work of Galileo, measurement was understood as simple congruence. To measure was the same as "to match" free from any demand of proportionality. Numbers were understood as things and so were they used in numerology. From the work of Galileo and after, tagmatic conjectures appear subordinated to pragmatic conjectures in which the presentations are been converted into signs and numerals. While archaic imagery resolves the classification of the lifeworld without worrying about its accountableness, the post-Galilean world was characterized by the project of a world of *searchable* and *findable* things. The archaic way of classify consists in recreating comprehensiveness *without using finite means*. If some finite (mechanical) procedures are involved as e.g. in Raymond Lull's volvelles, or in the labyrinths of the Kabbalah, these mechanisms are subordinated to the general infinite connectedness of the individuals. These collections have not *findable elements* because they do not include demonstrative presentations. A good metaphor of the archaic order is Jorge Luis Borges' *Chines Encyclopaedia* in which the order of the Encyclopaedia has to be confronted with the inexistence of methods to find their entries.³⁸ This typically differs from post-Galilean tagmacy, which is aimed to control the contents of a classification through matching *their individuals with finite series of numbers*.

The rise of mathetic methods from the time of Galileo and after, originates with the discovery of America and its immediate consequences for the culture of the Renaissance. This allows us to distinguish a new kind of promptitude that moves from a What-to-dock to a Which, Where and When-to-dock tagmatic conjecture. The first developers of this new kind of promptitude were among others Leonardo da Vinci, Vesalius and Copernicus. During the late Renaissance and as a consequence of the cognitive chock of the discovery of America, the allowed distance between contiguous presentations became *specified* changing the mathetic-tagmatic conjecture from vagueness to accuracy.

³⁸ Borges created many other interesting metaphors of the same kind in other short stories, for example: *The Garden of Forking Paths*, *Funes the Memorious*, *The Library of Babel* and *The Book of Sand* among others.

According to Foucault, the older ability to compare objects in all directions and the support of connectivity in each quality, were then replaced with two main forms of comparison: ‘there exists two forms of comparison, and only two: the comparison of measurement and that of order’³⁹. Foucault introduces the following schema for the new dominant “episteme”:



Presentation 64: Foucault’s presentation of the change of the kind of conjecture from the Renaissance into the “Classic era”.

In the new situation, the *order* of things becomes one of the most important tagmatic tools. Among the mathematical tools, algebra gains a first position. Quantitative arguments were used for simpler problems, while the more complex ones were treated with taxonomical method:

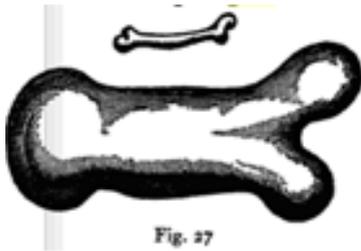
What makes the totality of the Classical episteme possible is primarily the relation to the knowledge of order. When dealing with the ordering of simple natures, one has recourse to a mathesis, of which the universal method is algebra. When dealing with the ordering of complex natures (presentations in general, as they are given in experience), one has to constitute a taxinomia, and to do that one has to establish a system of signs.⁴⁰

It is possible to follow this metamorphosis in Galileo’s studies regarding the morphology of living creatures. Galileo wrote:

³⁹ *The Order of Things*, p. 53

⁴⁰ *The Order of Things*, p. 72

Therefore, it is clear that if the giant want to contain his bodily proportions as the normal-size man, one must either find a harder and stronger material for the skeletal structure or accept a weaker body of an average sized man; cause if you increase his height beyond a certain point, he will collapse and be crushed under its own weight. However, if one makes a body smaller, it will not become correspondingly weaker: actually, the smaller the body, the stronger It becomes in relative terms.⁴¹



Presentation 65: Galileo Galilei,
*Taxinomia Concerning Two New
Sciences.*

The Galilean imagogony posited in Presentation 65 is mathetic because of the inclusion of the human skeletal structure as reference. Galileo introduces a method funded on proportions and their numerical consequences that allows the drawing of conclusions regarding the *form* of living beings zoomed-in to numerical scales. With his method, it is possible to say Which forms are impossible and will never be realized. The Galilean mathetic conjecture followed these steps: a) Compare the different dimensions of living tissues perceived according to criteria of magnitude; e.g. the length of a bone with its plan section or with its volume. b) Then study how this relation is affected by the change in size. One conclusion is that the changes in size creates morphological changes and vice versa. c) Finally, sort out the forms that do not conform to the changed conditions.

Among others, D'Arcy Thompson and Julian S. Huxley have studied the problem of congruence giving birth to the science of allometry.⁴²

⁴¹ Galilei, *Taxinomia Concerning Two New Sciences*, Dover Publications, Inc., New York; page. 131, 1954.

⁴² D'Arcy Thompson. *On Growth and Form*. Cambridge University Press, 2007. Julian S. Huxley. *Problems of Relative Growth*. The John Hopkins University Press; 1993.

Allometry is the quantitative phenomenology of the general tagmatic congruence of the lifeworld.

Chapter 5: Pragmatic conjecture [to-do-?]



Pragmatic conjecture consists on series of imagognomies with a demonstrative character.

The formula [to-do-?]-conjectures consist on a group of propaedeutic imagognomies with heuristic value. The action of giving birth for example has inspired many important extrapolations; the most famous maybe that of Socrates understanding of philosophy as the work of a “midwife” that helps other to give birth of truthfully ideas. Giving birth (Presentation 66⁴³) is pragmatically connected to “labour” and the verb “labouring,” meaning “exertion of the body.”



Presentation 66: From Eucharius Rößlin, a woman giving birth on a birth chair.

⁴³ Chapter illustration, a woman giving birth on a birth chair. From Eucharius Rößlin, *Der Swangern frauen vnd hebamme(n) ros-garte(n)*. Hagenau: Gran, um 1515.

Central for any study of the pragmatic conjecture is the understanding of the way mechanisms *works*. These rely on their *pragmatic properties*, which are revealed in *praxis* as a “presentation of a presentation.” In a post-Galilean time, we know intuitively that it is impossible to empty a lake with a pail but we cannot easily explain why using only tagmatic arguments. However, in an archaic tagmatic frame, the task would never be a problem. Heidegger noticed that: “What is ontically nearest and familiar is ontologically the farthest, unrecognized and constantly overlooked in its ontological significance.”⁴⁴ The lake and the pail, for a modern mind, belong to different tagmatic scenarios, and therefore are difficult to associate pragmatically. But from a general point of view, the *connectedness* of these scenarios has nothing to do with their pragmatic promptitude. We say that, a pail is tagmatically adequate to the task but pragmatically inadequate to it. If the action is intended to be performed by one person at a time, the pragma of one-person-to-one-lake is inadequate for the task. However, the pragma of “several-million-persons-pail-to-one-lake” could be pragmatically adequate.

Performance and discontinuous time

A performance cannot be posited, only executed. Of course, these presentations are not the performance itself but signs of it. This performative aspect of the lifeworld corresponds to the existential aspect of life, which itself can only be lived never posited. This insight makes the essential difference between the thoughts of Husserl and Heidegger. Husserl’s phenomenology is captive in the positing of eidicity while Heidegger moves on into a phenomenology of existence.

The movement between the entertaining of a presentation and the moment of action is *eidetically blind*; no record can possibly be about this process. It is also difficult to describe it as “the moment of performance” because the sole implication of the passing of time is problematic. It is experienced as a “jump” in the inner perception of time passing, according to which the flow of time “moves hastier” or “slower” depending on the effectiveness of the implemented technognomy. But, what means in everyday life when we “win” respective “lose time”? Let us clarify our

⁴⁴ Heidegger, Martin. *Being and Time*; 1996, p. 41.

approach to the question of “jumping forwards and backwards.” Let me study which is the introspective series of presentations associated to the jump into action of a moment of work. I will refer to one of Don Ihde’s examples directly connected to what he described as the two essential states of the mind: the *straightforward experience* and the *reflective experience*:

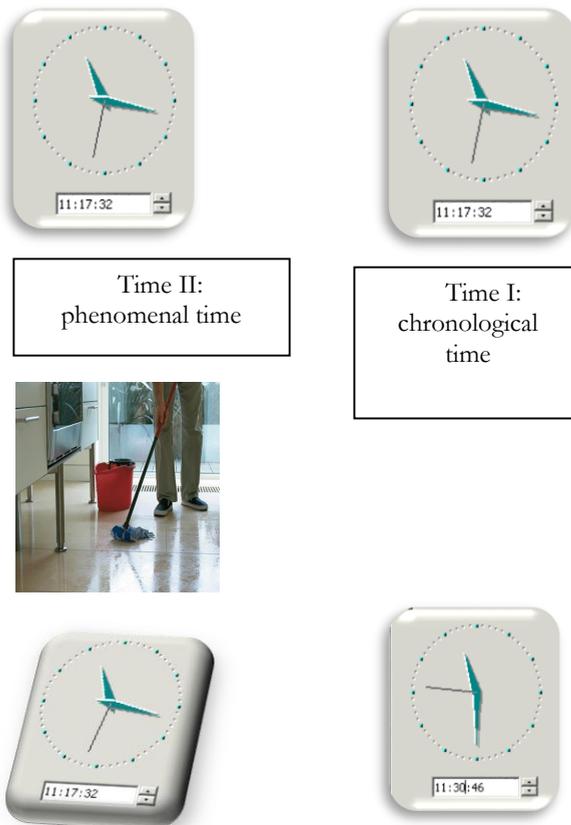
If I begin now to take note of my experience, deliberately trying to find the most straightforward experience possible, I may well make a certain discovery. In most of my straightforward experiences, I am certainly not primarily, or even self-consciously, attentive to what is going to the matter at hand. 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 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.⁴⁵

According to Ihde’s conclusions, my awareness interrupts during the performing of the action (for me “action” and “work” are synonymous) to return after it as an introspective recollection of the action. In other words, it can be said that the flow of time interrupts during the performing moment to start again after the end of it. That means that in the watch hanging on the wall in my room I will read the measurement of the passed time during my action (according to some natural processes e.g. the movements of the stars) while my experience is that no time have passed at all. Obviously, the perception of time passing during the action measured on the watch hanging on the wall is not the measurement of the introspective time passed during the action. It helps me nothing to affirm that the measurement of the watch hanging on the wall is “objective” because in any case is still inadequate to account what really happened. Ihde’s example is definitive to demonstrate

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

that the introspective time passing interrupts completely during the performing of an action. That implies that the time-passing process of the lifeworld is discontinuous. Moreover, that means that during the performing moment, time *halts*. One important conclusion derived from this is that the more actions performed the more discontinuous will be the passing of time. In this sense, my “working time” *is not time at all*, but absence of time. It is as if during the working process the watch of the lifeworld halts.

Comparing these two different measurements of time it is obvious that suspending the flow of time passing through the performing of actions, implies a kind of “jumping into the future” respect to the chronological watch hanging on the wall. Each “return” from “timelessness” will found the chronological watch in a “future” to which the lifeworld has not yet arrived (Presentation 67).



Presentation 67: The winning time of action.

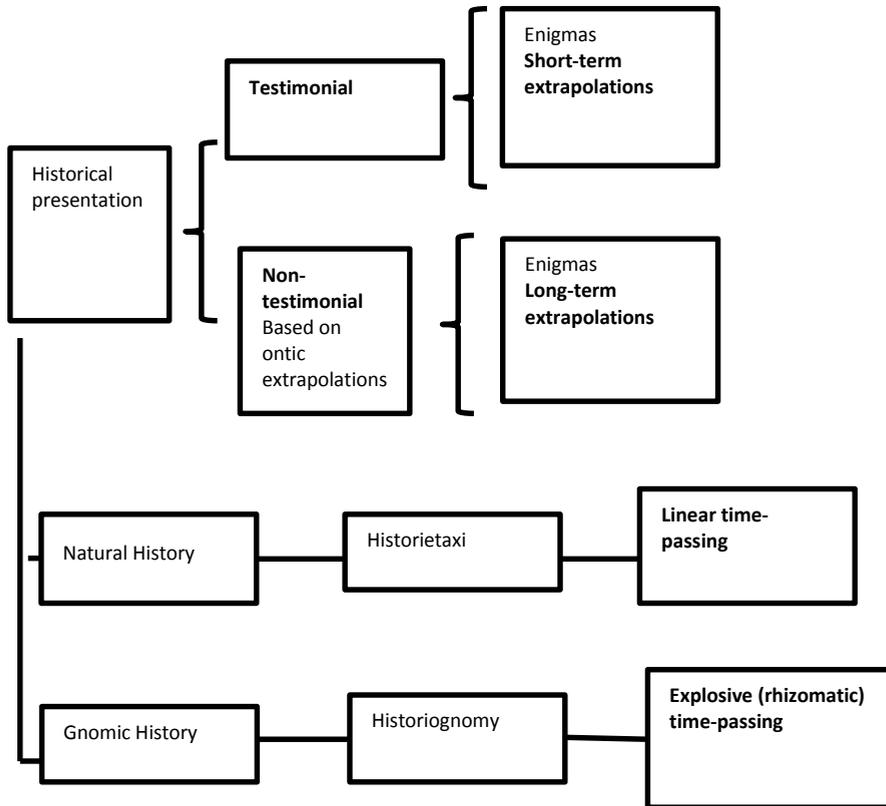
Historical conjectures

It may be necessary to begin now an overview (see Presentation 68) of the different features of a demonstrative presentation that I have already introduced. I have said that there are two main forms, first the *testimonial* presentation that is contemporary to the Self which is characterized by short-term extrapolations, and secondly the non-testimonial presentation which is characterized by long-term extrapolations. I consider that both are *enigmatic* in opposition to the *puzzled* character of a descriptive presentation. These two types of enigmatic presentations must be combined with the presentation of time passing as *linear* or *rhizomatic*. The first is typical for the theory of evolution and the second for our theory of history as explosive.

A metaphorical account of the *rhizomatic* theory of time-passing posit that there are no periods nor stages but *propagations* of foundational questions and answers, that motivate to search and to find about What, Which, When, Where, Who, How and Why and their endless combinations. We cannot say that we are in e.g. the “Modern era”; instead, we must define the specificity of this trend through a demonstrative presentation which is characteristic for it, e.g. the [to-do-?] of “coal mining”, or the [to-do-?] of the “spinning jenny” or the [to-do-?] of the “steam engine.” This way to account time passing is absolutely concrete and cannot be extrapolated into a global time passing line. For instance, presentations about “coal mining” ask and answers the same questions that any other variant of mining: “malachite stone mining”, “copper mining”, “silver mining”, and so forth. Any of these variants of mining-praxis are contemporary to each other, making the linear measurement of time in periods superfluous. Of course, it is possible to argue that some mining forms *are been possible* after the experience of other mining forms in an evolutive chain of happenings. But this argumentation is built on an extrapolation and presupposes that which it try to prove. For example, if I consider that “stone mining” must precede “copper mining”, “I assume that if I were in position to discover the evolution of one from the other, I will begin with the mining of stones.” No prove can be collected from now time, because all kind of mining are been used “now”. The extrapolative conjecture cannot be avoided with documents in which observers tell us that some new kind of mining technognomy was developed at their “now-time”. This testimonial account is in their turn also built on extrapolations made in some other eidetic horizon different but similar to

our horizon. Their “now-time” was built on some eidetic constellation of questions and answers similar to our “now-time”.

Presentation 68 posits the global schema of the historical presentation:



Presentation 68: A general presentation of the features of historical conjectures.

Case study: Historical causality

I consider Presentation 69 demonstrative and testimonial. However, it is positing and incomplete conjecture. The meaning of the presentation must be completed with other implicit but not present presentations. This kind of historical conjectures are built on many other possible *middle presentations* that connect back to a starting-presentation that works both as

point of departure and as point of destination of the conjectural process.



Presentation 69: *Cause and Effect*. Painting by Chris Moses Tolliver.

To fully understand the conjecture posited in Presentation 69 it must be connected to e.g. Presentation 70⁴⁶ or some other equivalent:



Presentation 70: Frank Leslie's Illustrated Newspaper.

⁴⁶ Frank Leslie's Illustrated Newspaper (Aug. 5, 1876). Library of Congress, Prints and Photographs Division, LC-USZ62-38373.

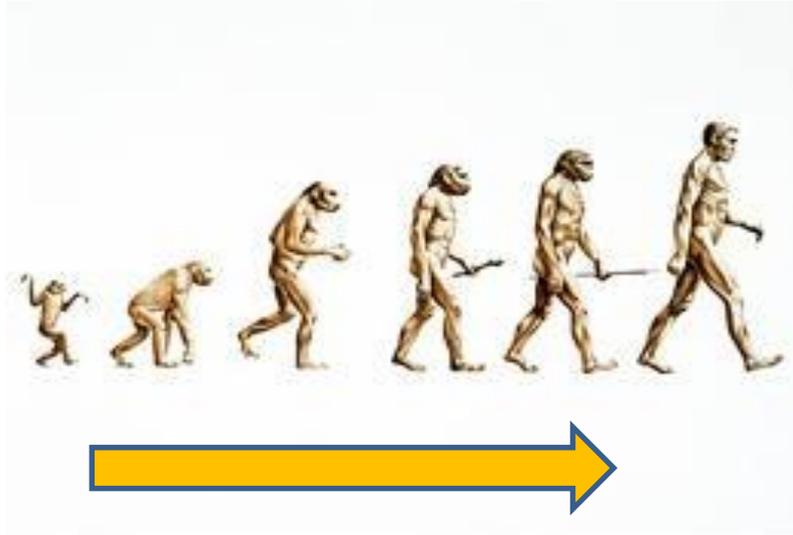
An example of the final chain of conjectures could be the following Presentation 71, which posits the chain of conjectures.



Presentation 71: A possible chain of conjectures.

I believe that the following Presentation 72 is descriptive and non-testimonial, and constitutes a paradigmatic case of a Natural historic conjectural presentation. The connectedness between humans and animals as an evolutive process, can be found already in Aristotle as Gunnar Broberg mention in his *Homo Sapiens L.*⁴⁷ According to Broberg, Aristotle considered man as an animal and as such was the natural reference and the standard to which other animals will be compared. Using the resources of analogy Aristotle tried to find similarities between human and animals comparing organs and their functions. This practice was developed later by scholasticism in the dichotomy “rational and irrational”.

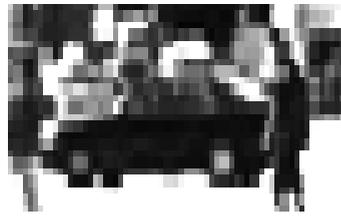
⁴⁷ Broberg, Gunnar. *Homo Sapiens L. Studie I Carl von Linnés naturuppfattning och människolära*. Almqvist & Wksell, 1975; p. 155-156.



Presentation 72: A presentation of the human evolution.

Presentation 72 is obviously a long-term extrapolation positing the non-testimonial stages of evolution. The passing of time as *evolution* –is implicit in the ordering in a “line” of the presented organisms. The presentation assumes that time is “moving” from the left to the right of the queue; in the same direction in which the humanoids are “walking” and that order of the stages of the evolution process corresponds 1-1 to the tagmatic order on the queue. Both Presentation 71 and Presentation 72 are signs because both posit the human as the alter Ego. Both are also epistagmatic in the sense that are positing *latent* visible and invisible causal signs upon the manifest (the “arrows” of the presentations).

The imagery of history can also be presented without explicit references to causal connectivity, recurring to changes of tagmatic characters as in Presentation 73 in which the same building is presented surrounding with artefacts belonging to different recognisable “periods” of history. Tagmatic conjectures built on zooming in and joining processes are used here to create the historical differences:



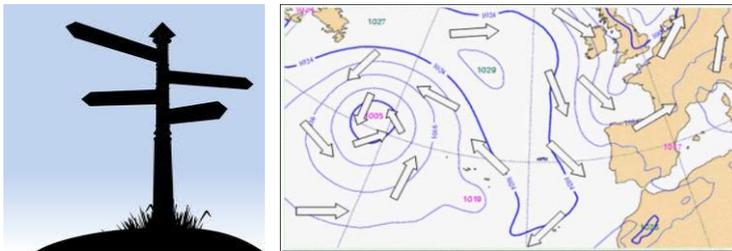
Presentation 73: *Tagmatic conjectur*, the Flat Iron Building; New York, then and now.

Chapter 6: Epistagmatic conjecture [because-?]



Epistagmatic conjecture: consists on a series of sign-imagognomies with a communicative character. The sign is the presentation of the historical alter Ego, often *precluded behind extrapolations*.

A very important insight that we got from the previous section is that an explanation is not only built on signs but that these signs must be adequately informative so they do not over-dramatize action. In other words, an explanation is a conjectural chain of presentations that converts the demonstrative characters of a pragmatic conjecture into explicative or “epistagmatic” showing How with words, symbols and other syntagmatic resources. The epistagmatic presentation uses the same solutions of the tagmatic conjecture including joining series and zooming-in and out series that are not congruent to other presentations but “forcing” one of the possible connections.



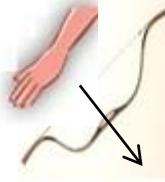
Presentation 74: The presentation as a sign.

For example in Presentation 74, the “arrows” are zooming-in presentations of anthropognomic imagognomies of hunting scenarios. Causality, intentionality and purpose are posited as the extrapolation of the direction of the movement of a physical arrow. However, the epistagmatic conjecture *compresses* the posited material. The term “compression” describes

here a process that could be understood as the opposite to the dissection-process of the zooming –in and out of the tagmatic conjecture. While the dissection-process is breaking an imagognomy down into its components; the epistagmatic synapsing considers isolated imagognomies as if they are parts of a heterogeneous whole. The epistagmatic synapse uses many imagognomic levels, and the chains of conjectures can combine tagmatic, pragmatic and syntagmatic synapsing as in Presentation 75:



Pragmatic
Conjecture.



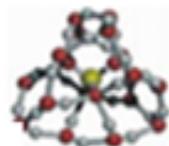
Tagmatic
Conjecture.



Epistagmatic
Conjecture.

Presentation 75: A chain of conjectures.

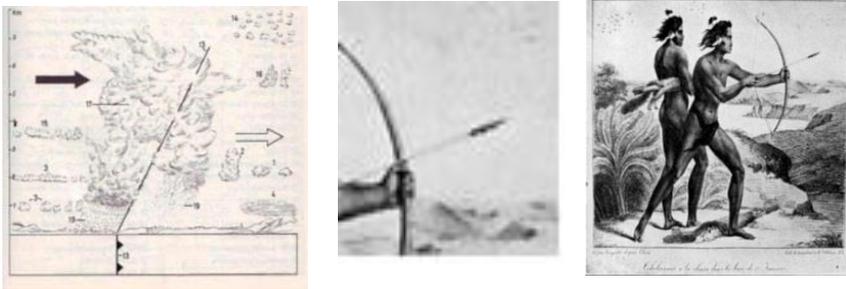
Because epistagmatic presentations are not obviously connected to anthropognomic eidicity, the presentation can only be related to each other through the *authority of the expert*. An example could be the eidetic conjecture departing from a presentation of an arrow, into one of the molecules of the arrow (see Presentation 76). In this case, the arriving-presentation has no possible connection with the original departing-presentation of pragmatic character and the connection must come from the point of view of the expert interpreter. This is typical for the process that relies on authorities.



Presentation 76: The meaning of this epistagma relies on authorities.

Epistagmatic case studies

In the most of the cases, epistagmatic conjectures are built on complex combinations of eidetic *retroferences*. In the case of Presentation 77, the eidetic retroference includes many steps back to the anthropognomic presentation:

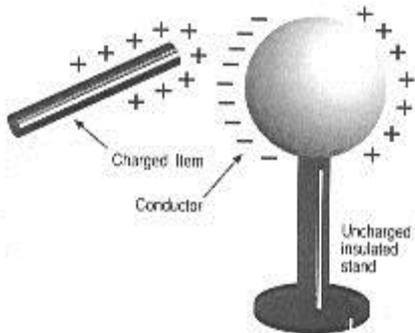


Presentation 77: The Historization of an epistagmatic conjecture.

A map, a chart, a diagram and other related types of epistagmatic conjectures are always specializations of anthropognomic pragmatic presentations. Presentation 78 is a typical epistagmatic conjecture of the kind that populates the books of science. It posits the phenomena of electrostatic induction of charge in the instrument by holding a charged dielectric rod near it. The conjecture is “eclectic” combining pragmatic and epistagmatic presentations. The “story” of the conjecture tell us “the positive charge on the rod causes the mobile charges in the brass post to separate. Negative charges are being attracted into the top electrode, while positive charges are repelled into the leaves, causing them to separate.”⁴⁸

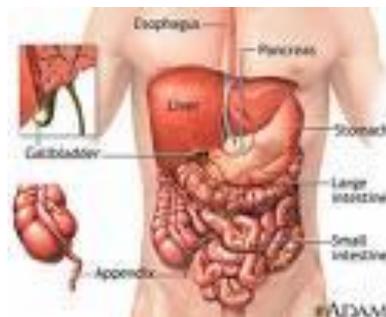
⁴⁸ ESD journal: <http://www.esdjournal.com/techpapr/eosesd/failures/induct.htm>

The presentation includes some fantastic *plusses* and *minuses* showing the areas of charge:



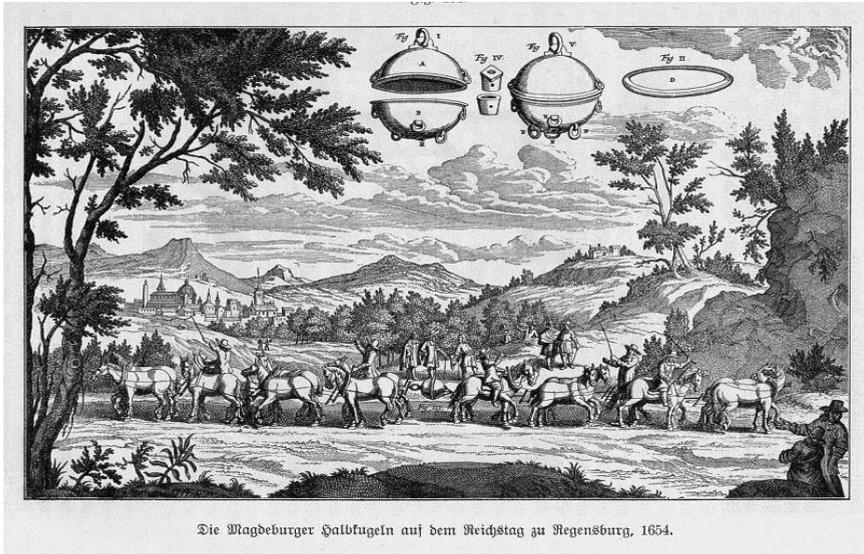
Presentation 78: Another “fantastic” presentation of the electrical streaming.

Presentation 79 is another example of an eclectic conjecture combining both epistagmatic conjectures and clearly demonstrative conjectures:



Presentation 79: The inner organs existences are guaranteed by the authority of the expert.

In Presentation 80 epistagmatic conjectures are built on spheres, letters and words, joined to a demonstrative presentation:



Die Magdeburger Halbkugeln auf dem Reichstag zu Regensburg, 1654.

Presentation 80: In 1663, Guericke demonstrated the power of a vacuum with his Magdeburg Hemispheres to Emperor Ferdinand III..

Chapter 7: Epistagmatic conjecture in mathematics

Don Ihde discussed the term “visualism” in his book: *Expanding Hermeneutics; Visualism in Science*, from 1998. The introduction of the term aimed to the development of a hermeneutics of science focusing in “visualization” of mental contents as the typical bearer of scientific truth. Ihde proposes the expansion of hermeneutical studies to the field of technoscience making a phenomenological interpretation of visual contents in the technoscientific discourse. In this project, Ihde concluded that from the earlier times of modernity, hermeneutics grew apart from science, making rationalism, empiricism and later positivism the standard interpretations of science:

The overarching aim here is to argue that we have often misconstrued what science is and how it operates because, in part, we have for so long ceded the interpretation of science to forms of positivism. In what I call the ‘H-P Binary’—the contestation between hermeneutics and positivism—hermeneutics first finds itself divorced from the sciences, and then by its own historical proponents made semiautonomous with respect to its interpretive activities in such a way that positivism simply became the standard for framing the understanding of the sciences. What I call the ‘P-H tradition’—the phenomenological version of hermeneutics—often itself simply accepted this binary, and until recently tended to ignore attempts to enter the domains of science praxis and the understanding of same.⁴⁹

Consequently, the “H-P Binary” is the point of departure of Ihde’s project, and the actualisation of the “P—H tradition” to the post-modern era, is its actual goal. Ihde structures his project in a “weak” respectively a “strong” research program. In the frame of a “weak” program for the implicit hermeneutics within science, Ihde distinguished between pure Gestalt features—as the appearance of a Presentation against a ground—and

⁴⁹ Ihde, Don. *Expanding Hermeneutics. Visualism in Science*. Northwestern University Press, 1998; p. 3.

“a related, but different, set of visualizations, which bear much stronger relations to what be taken as ‘textlike’ features. [...]” This second group of depictions with textlike qualities (we will label this group of depictions as “text-depictions”) is not the group of “journals, electronic publications, books” generated within the scientific activity which “always remain secondary or tertiary with respect to science” but a kind of hybrid between pure visualizations and texts:

So this is not the textlike phenomenon I have in soul; instead, I am pointing to those analogues of texts which permeate science: charts, graphs, models, and the whole range of ‘readable’ inscriptions which remain visual, but which are no longer isomorphic with the referent objects or “things themselves.”⁵⁰

Of course, these textlike depictions as “charts, graphs, models, and the whole range of readable inscriptions” are in our terminology concrete examples of synapsing (embodiment at the eidetic level). Their character is adapted to the question they need to answer. Don Ihde refers to Galileo’s visualization of the Moon after seeing it through the telescope:

Spatiality has just undergone a set of dramatic changes; suddenly the Moon has mountains, craters, and so on, which mean that what was previously more “distant” is now “closer.” But what makes it closer, and what changes occur? First, the “closer” Moon (through the telescope) has now displaced its previous context. It no longer occupies its relatively located and smaller appearance within the overarching heavens. In relation to its previous field, it has radically changed. Magnified, the Moon is “closer.”⁵¹

The experiences of closeness and distantness of the Moon arises as series of tagmatic conjectures based on zooming-in and out presentations. They are then recognized as belonging to the anthropognomic “Moon” of traditional narratives, extrapolated through the telescope. The Ihdean hermeneutical approach allows us to anticipate the central role that technognomic eidicity has for epistagmatic conjectures. It is our intention here to follow Ihde’s research project but moving inquiries from the field of natural sciences to the field of mathematics. My intention is to show how some textlike presentations from “mathematical reality”, are

⁵⁰ Ihde, Don. Op.cit. p. 158-167.

⁵¹ Ihde, Don. *Expanding Hermeneutics*; p. 154.

anthropogonomic transcriptions of technogonomic character. I think that mathematics is the field of science in which a renewed “P-H tradition” can be most useful. The differences between pure anthropogonomic features and textlike presentations are very important for the purpose of our study and we will reinforce their importance introducing the idea of dimensionality as their main intrinsic difference. “Visualizations” are special aspects of the scientific imaginary because they have the power of being “proof-producers”; or what is the same, they are *epistagmatic conjectural tools*. From the time of Galileo, these proof-producers presentations have played an essential role in the historical divorce between the life world and the artificial world of science, hiding the nearer connection between the epistagmatic meaning of “proofs” and anthropogonomic conjectures.

The development of modern mathematics and logic shows from its beginnings a marked inclination to the treatment of visual presentations whose epistagmatic character (as visual imaginary) has not yet been considered from the point of view of the “P—H tradition”. It could be said that from the origin of Western thought (e.g. Porphyry’s tree) but specially from the flourishing of modernity after Galileo and Descartes’ analytical geometry, all science has been impregnated of visual constructions whose epistagmatic character continue being out-conscious. A common element of all these “visual” constructions is to represent a certain type of “logic of the visual reality”, which could be illustrated by John Venn’s (1834 –1923) configurations of circles. The geometric constructions in logic, works generally as analogies but they are more than that, they are *epistagmatic synapses*. In any case, the conclusion must be that text-depictions and their relations can express logical realities because the logical process can be followed “visually” without any other help. It is as we could speak of a “visual logic” that can be used as a kind of epistagmatic “language”.

- ***Epistagmatic synapsing in mathematics***

The complexity of transcription from tagmatic, to pragmatic and then to epistagmatic synapse can be studied for instance in the quasi-mathematical, quasi-logical cases of the eclectic presentations of modern mathematics. For example in the study of two series of numbers, which “are matched 1–1” or the case of the idea of “cut” in the series of the Real

numbers; or the case of the “diagonal” proof of Cantor. Many logicians and mathematicians have noticed the importance of imagery in the validating process of truth and understood this as a problem for positivism. Influenced by the traditional view that the visual presentation is *less accurate* than the language based on signs and symbols, they have tried to substitute visual imagery with text-like imagery (signs and symbols). Putting this project in other words, the task would be to transcribe “visual” presentations into presentations based on numbers, numerals and signs. We think that it is possible to relate this understanding to the eideticity of the scientific revolution.

However, the efforts of formalism in logic and mathematics to replace visual presentations by pure signs and symbols ignored the fact that all signs and symbols (and every series of signs and symbols, every term or sentence of an artificial language) is eidetic as well and therefore, potentially “visual”, because of the transcriptional character of thought. Don Ihde refers to this aspect in science:

Of course, there are always holdouts and these usually are found among physicists. Today those who want to hold to imperceptibility belong to the quantum mechanicians who often claim that the spooky parts of quantum phenomena cannot be visualized, but are understood only through mathematics—echoing Galilean metaphysics, not Galilean practice. This is not something new: to the contrary, the trajectory toward more ‘textlike’ hermeneutics remains within science itself. Some scientists do not like ‘pictures’ and prefer formulas. Others recognize the value of the ‘aha’ quality of getting a depiction. Here is a precise counterpart to the tension between the ‘textualists’ among post-modern critical theory and phenomenological perceptualist hermeneutics as found in the humanities.⁵²

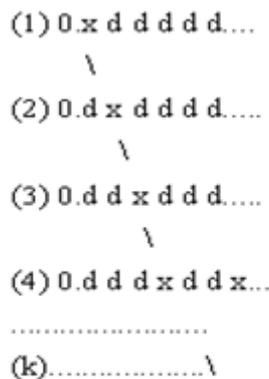
Normally the term “dimension” is used meaning two very different realities: first the *size* of something and secondly the *dignity* of a presentation (it is to say the character 0–dimensional, 1–dimensional, 2–dimensional, 3–dimensional, etc. of one presentation). When for example mathematicians work with the idea of infinity, they do it referring to the notion of the size of a set. However, considering the *dignity* of the visualization of an infinite set, we immediately understand the *relative* character of its *size*. The *size* and *dignity*

⁵² Ihde, Don. Op.cit. p. 5.

of the presentation of a set depends of the observer's own dimensionality. We could say that for God there is no "infinity".

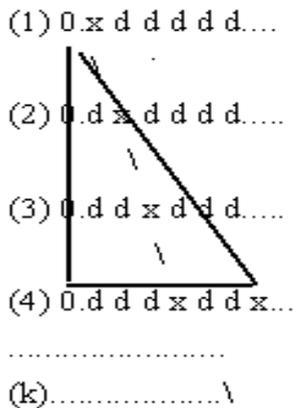
- ***The three steps from tagmatic, to pragmatic and to epistagmatic synapse***

I shall illustrate the complexity of the problem with an example. The diagonal-proof of Georg Cantor (1845–1918) is one of the fundamental keys of modern mathematics. It consists of a triangular presentation of an imagined succession of numbers. Cantor introduced the method in question to make *rigorous* the study of infinite sets of numbers and its relations. The method allowed the ordering of infinite sets as transfinite, that is, as infinite sets of *different size*. Cantor tried to demonstrate among other things, that the set of real numbers is not countable; that is, that it cannot be put in a 1–1 relation (in pairs) together with the set of natural numbers. The power of being "countable", supposes the congruence between any set with the set of natural numbers. The conclusion of the proof would be to demonstrate that the set of real numbers is of a *higher infinity* than that of the natural numbers. The analysis of the dignity of the presentation of Cantor's proof reveals that it handles two different scales of dimensionality *simultaneously*. The construction of Cantor aligns the real numbers and the natural numbers in pairs in the following way:



Presentation 81: Cantor's diagonal proof.

A “diagonal number” that does not belong to the original list may be constructed replacing the “x” in the diagonal list. Observe the geometric character of the construction. Notice that the construction of the “missing” real number of the list arises as the hypotenuse of a triangle. Nevertheless, the hypotenuse of a triangle is always *larger* than the triangle’s legs; therefore, the “new number” may only be a new presentation of a number of the original list but now in a ‘new size–dimension’.



Presentation 82: Cantor’s diagonal proof ‘visualized’.

It is possible to divide the steps followed by Cantor in three moments:

- 1) First, the *tagmatic synapse* of the 1-1 matching of the elements of two sets.
- 2) Secondly, the *pragmatic synapse* of the proof, moving to the praxical sphere of the everyday world arranging the numbers in series (*queues*) to construct a “triangle” (showing How).
- 3) Finally, the *epistagmatic* “jump” from the pragmatic world to the imagery of positivism, with the “construction of a number which is not in the queue.” Epistagmatic synapse is always “magical”, implies a jump into the *non-anthropogonomic* world.

How can we know that Cantor’s proof in fact proves what it is meant to prove? It is evident that the visual diagonal in the demonstration of Cantor tries only to be a selection–method and does not work as a truthful

“geometric” diagonal (the diagonal is in some sense a “text-depiction”). However, the success of the selection–technique rests precisely in the fact of being a *geometric construction*. Without the visual presentation of a diagonal, there is no proof. Without the change of status in the presentation of real numbers, a “new number” cannot be produced. The great dilemma is then to know if the number constructed by Cantor is nothing else but the original presentation presented towards a new dimensionality. Wittgenstein wrote about this:

The following sentence sounds to sober: ‘If something is called to series of real numbers, then the expansion given by the diagonal procedure is also called too ‘real number’ and is to moreover said to be different from all members of the series’. Our suspicion ought always to be aroused when to proof proves means dwells than it allows it: Something of this sort might be called ‘to puffed–up proof’.⁵³

The underlying problem is that of the notion of dignity of a presentation, a problem that still lacks philosophical precision. The demonstration in diagonal supposes the handling of depictions that represent numbers. The effectiveness of the proof rests in a dimensional *incongruence*. The value of the proof is then comparable to the value of the following proof of my own:

If all the men of the world align themselves in a row properly arranged, it is possible to proof that it shall always be possible to construct a man diagonally with the parts of the aligned men of the original row. A diagonal–man with the hair of the first man, the eyes of the second, [...] etc.

Let us here make the three steps of epistagmatic conjecture:

- a) First, the *tagmatic synapse* of the 1-1 matching of all the men of the world.
- b) Secondly, the *pragmatic synapse* of the proof, moving to the praxical sphere of the everyday world arranging the men in series (*queues*) to construct a “triangle”.

⁵³ Wittgenstein L. *Remarks on the Foundation of Mathematics*. Basil Blackwell. Oxford, 1956. II-3, 56.

- c) Finally, the *epistagmatic* “jump” from the pragmatic world to the imagery of positivism, with the “construction of a “man” which is not in the queue of all men.”

The proof ignores the forceful fact that the constructed man is nothing else but the presentation of an individual man on a completely different size–scale. The proof of Cantor can be “useful” if it stops at the pragmatic level, avoiding the jump into the infinite. His “infinite sets” can be remade into “very large sets” in respect to the *anthropognomic* perspective. The amount of years past from the Big Bang until our days is a “very large” number of years for an anthropognomic perspective, however this is not an endless number of years. Cantor’s proof can be accepted as a description or narrative for praxical purposes in a finite world.

- ***The transparency of logos***

The question of *presence* is very important to phenomenology, because one aspect of the phenomenological method is the study of that which is *given*. There is then, a preliminary definition of “presence” as “posit content” which coincides with the Derridean understanding of presence as the immediacy of “immanent entertaining of thought”. However, there are more aspects of this issue if it is considered from the point of view of intersubjectivity. In communication, it is not the same kind of presence involved in eye-to-eye (face-to-face) communication than the kind of presence involved in a telephone conversation. The kind of presence involved in an e-mail dialogue made through written language is also different. These nuances of “presence” seem to have been overlooked by Derrida for whom written language seems not to be *present* at all. In fact, I believe that written language is in some other sense *more present* than any other form of language because written language is a consequence of recollection that overcome the passing of time. Let me introduce an opposite concept to “presence”: the concept of *opacity*. From the point of view of eidetic conjecture, the opacity of written language is superior to spoken language, which is much more close to immanent imagery. So, if Derrida was right is not presence that would be a characteristic of Western logos, but *transparency*. Transparency is a central aspect for narrativity and

descriptiveness that expresses towards anthropogenic presentations. Showing How, would be impossible without transparency. Following this line of thought is possible to see geometry as an attempt to develop a narrative and descriptive language that combines mathetic presentations with visual presentations assuring a maximum possible of transparency. The account of the same geometric content based on signs and symbols would be much more opaque.

When working with logic and mathematics, ontic and syntagmatic aspects are handled simultaneously and it is important to pay attention to their differences. Working with “numerals” for example, would seem to impose the abandonment of the complex eideticity of mathematical presentations of different size and different dignity in benefit of pure syntagmatic considerations of the pure d=1-level. *Numerals* in fact, as text-depictions of numbers, occult the intuitive connections underlying mathetic thought and its eidetic associations, and make the mathematical language limited. In fact, the natural connections between numbers as signs and symbols, and between numbers as spatial presentations, disappear behind the numeral. The numeral is in this sense *opaque*.

The use of numerals became regular with the work of the Italian mathematician Giuseppe Peano (1858–1932) and his work with the axiomatization of arithmetic. A numeral is a logic predicate as ‘next to...’ In this way if the ‘0’ is defined, it is possible to deriviate the number ‘1’ as ‘next to 0’. If we identify the expression ‘next to...’ = S, then can we express ‘1’ as S (0). The addition ‘2+2 = 4’ can then be expressed as ‘S(S (0)) + S(S0)) = S(S(S(S(0))))’. The introduction of numerals can be justified because it reduces the number of signs and symbols needed to express mathematical contents. However, as a negative consequence, the mathematical terms became much longer, takes more space and time to read and much more time to understand because they became *unintuitive*. The numeral introduces the problem of the intuitive perception of mathematical content. The “human brain” does not work as well with logical “reductions” as machines do. The “human brain” needs in any case, to translate numerals to numbers to think them mathematically. About this Wittgenstein wrote:

[...] you can easily come to believe that the expression of an equation is a tautology. That e.g. $28 + 16 = 44$ might be expressed in the following way:

(E28x) bx . (E16x) mx ind.: > (E44x) bx v mx

This expression is a tautology. But in order to find the number on the right-hand side that turns this expression into a tautology, you have to use calculus, and this calculus is entirely independent of tautology. Tautology is an application of the calculus, not its expression.⁵⁴

Although Wittgenstein never handled the notion of the size and dignity of a logical or a mathematical presentation, and phenomenology was not his project, it would be possible to say that he anticipated it in a remarkable way. The process towards the simplification of presentation in mathematics and logic was justified as the natural defence of science against the vagueness of intuition. Connected to this problem was the idea of “rigorous thinking”. Any constructed language is *by force* outside anthropogonic eidicity and therefore, outside the process of compression that converted imagery into actions.

- ***Julius Dedekind’s ‘cut’ and the order of the Big Bang of history***

We must be sure that any project destined to break the natural connectedness between the different imagery-levels created during the Big Bang of history is condemned to meaninglessness. However, mathetic languages can avoid meaninglessness if they conserve the natural connectedness to anthropogonies. For example, a mathematical “cut” is exactly the same “cut” as it is in everyday life; this is an anthropogonic reduction. It is impossible for us to think a “cut” which is different from a simple “cut”. This is the pragmatic synapse of every conjecture. The connection does not depend on the linguistic semantic level. It is not e.g. the contents of an equation—its factual linguistic meaning—that make the interpretation possible. It is not some hidden mathematical meanings that which make Cantor’s diagonal proof work; it works because the proof release the power of intuition associated to anthropogonic praxis about “a set”, “a triangle”, “a diagonal”, etc.

Our study begins then, putting aside the obvious meaning of a mathematical content trying to find anthropogonic features that connects transcriptions with everyday realities. Strictness in logic and mathematics,

⁵⁴ Waismann F. *Ludwig Wittgenstein and the Vienna Circle*. Blackwell. Oxford, 1979; p. 106.

reaches through putting presentations in “opaque” terms, trying to elude the anthropogonomic intuition. A great part of modern work in mathematics and logic has been done through the blackout of these intuitions. However, this blocking of everydayness in mathematics can be uncovered by hermeneutic studies that reinstall the anthropogonomic meaning which is hidden.

Julius Dedekind (1831-1916) produced an historical definition based on the idea of a “cut” in the series of Real numbers. The eidetic cut divides the rational numbers into two sets, in which all the members of one upper-set are greater than the members of the lower-set. An irrational number is then defined as the number that fills up the gap between the upper and lower class. For instance, taken the example of the square root of 2, we put all the negative numbers and the numbers whose squares are less than 2 into the lower class, and the positive numbers whose squares are greater than 2 into the upper class. Once again, we quoted Wittgenstein’s criticism:

The misleading thing about Dedekind’s conception is the idea that the real numbers are there spread out in the number line. They may be known or not; that does not matter. And in this way all that one need to do is to cut or divide into classes, and one has dealt with them all. It is by combining calculation and construction that one gets the idea that there must be a point left out on the straight line, [...]. What is the application of the concept of a straight line in which a point is missing?⁵⁵

There is a very important and out-conscious manipulation of transcription in Dedekind’s construction, the praxis of cutting and separating, the praxis of finding things spread around in suitable successions make this proof a master piece of anthropogonomic manipulation. That talks a lot about the nature of mathematical onticity, which is in fact deeply rooted in the everyday world as mathetic (tagmatic) conjectures.

⁵⁵ Wittgenstein L. *Remarks on the Foundation of Mathematics*.IV-37, p.151e.

Chapter 8: A case study: from apprentice to expert

Loet Wakkerman is a designer and constructor of the engines of model airplanes. In his web page from 2002, Loet Wakkerman will teach us how to create some engines. The introduction is directed to persons who know what he (Loet Wakkerman) is doing. However, Wakkerman assumes also that his audience does not know how to do it. This didactic process presents a complex succession of conjectures, sometimes tagmatic, sometimes pragmatic and sometime epistagmatic. To teach us, [to-do-?] with these engines, Wakkerman introduces us to the propaedeutic rule that to *demonstrate* with presentations imply a retroference to anthropogonic sources. He is going to “show us” –and here comes the *alter ego identification*—identifying the observer or interpreter with the teacher and which make the presentation a sign. Wakkerman acknowledges that his way to do it is certainly only *one way* to do it, but it is the way to success:

I will try to *explain* how I make my engines. It doesn't mean that this is the way to do it, but this is just the way I am using. There are probably more ways that leads to troubles. The story will be a little in the ‘you we I’ form.⁵⁶

Wakkerman accompanied his words with a presentation of himself standing in front of one of his tool-machines (Presentation 83). We get a personal presentation an also a tagmatic reference of the proportions between the human body and the tool-machine that “we are going to work with”. In a second stage, Wakkerman introduces the tool-machines.

⁵⁶ Reproduced with Wakkerman's permission: 2010-04-03 07:13./ Loet en Helle Wakkerman (2002). I have modified the numbers of the presentation.
<http://home.wxs.nl/~wakke007/engines/part1.htm>



Presentation a

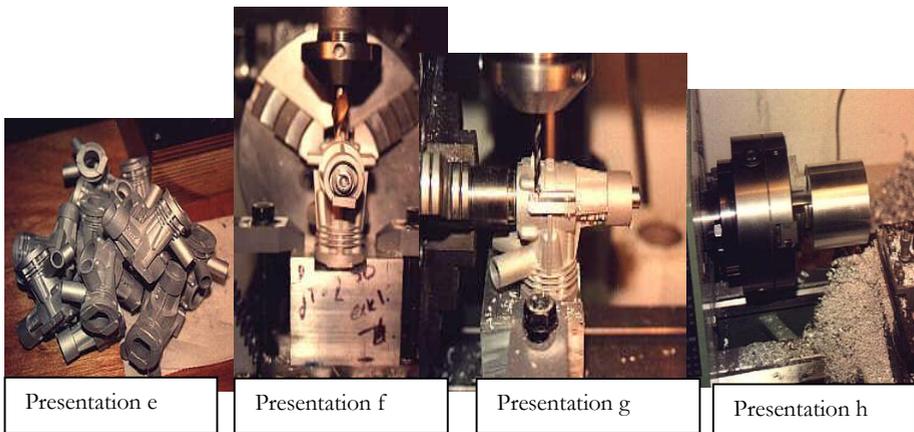
Presentation b

Presentation c

Presentation d

Presentation 83: Flashes about the lifeworld of the workshop.

We assume that the chain of presentation of the machines are zoomed presentations of the whole workshop combined with demonstrative presentations. However, these machines are not “being used” and these presentations are not demonstrative but still descriptive. From them we learn only about their proportions respect to the human body; positing a tagmatic conjectural chain (Presentation 83). Immediately Wakkerman describes the scenario of the workshop, which coincides in place with his home. We notice that Wakkerman introduces himself using an everyday frame; he is anchoring his and ours imagery in a common everyday environment. Wakkerman is working in the bedroom, the centre of his home: “These 2 machines are standing very closely together on a surface area of about 4 square meters. [...]. Because we don’t have a very big house we had to find a nice place for them. So they stay in our bedroom. In our bedroom, I made a new small room, which is noise isolated and the machines are standing on rubber. Everything is comfortably enough and this is proven by Helle regularly when I see that she is sleeping while I am working, even when the door to the ‘machine room’ is opened.” He continues with his introduction with Presentation 84 (e, f, g, h) in which we are confronted with the material that “we are going to work with: the crankcase” and some demonstrative moment in which the tools are at work.



Presentation 84: Descriptions of the working tools.

Wakkerman continues: “in an internal combustion engine, the crankcase is the housing for the crankshaft. The enclosure forms the largest cavity in the engine and is located below the cylinder block.” He tells us that all these presentations were made when he was making the “WAK rear intake engine”. Here he is assuming that the reader knows what this engine is and how it will be used. He refers to the “the model flying season starts” and therefore we deduce that we are talking about model airplanes. We deduce that the WAK maybe some part of the motor of such an airplane.

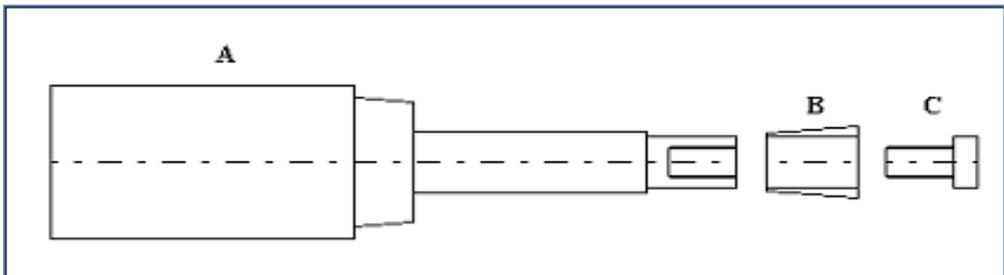
All these pictures on this page were made when I was making the WAK rear intake engine, but in general, these procedures I’m using for all my engines. I will try to explain step by step in what stage I am and hope to make a test report before the model flying season starts. My target is to make 6 WAK front intake crankcases and 8 L+L front intake crankcases. I don’t know how many I will build together but at least 3 WAK’s and 4 L+L’s to avoid statistical errors.

Wakkerman introduces to some measurements and technical names that move the reader into a series of mathetic conjectures. To follow him at this point would be necessary to know more about this kind of crankcases. Then Wakkerman introduces his working method, which he calls “lost wax method for making crankcases”. The lost wax method is *mould casting*, one of the tagmatic conjectural embodying series of presentations. This tagmatic conjecture allows anything modelled in wax to be recreated fully and

faithfully into various metals.

When using the lost wax method for making crankcases you should be aware of the fact that the crankcases are always a little bend. This happens because one side of the negative mould is always earlier opened. This side will shrink a little more. So, we need to be sure about it that the axis of the cylinder hole and the axis of the crankshaft hole cross each other. If that is what you want then invest a lot of time in adjusting the jigs you are using.

In Presentation 85, Wakkerman moves to higher level of expertise and begin to talk about “a square block that is situated within 0.01 mm”. He is changing now to an epistagmatic presentation. The presentation of the tool is now a sign. You are clarified about, “the crankshaft hole is not at the right dimensions when it arrives from the aluminium caster so therefore you need a jig that is conical on the back and goes through the crankcase hole”.



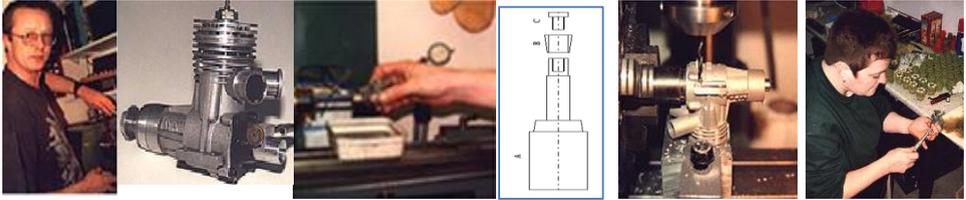
Presentation 85: This is the jig described above. The description which is detached from earlier presentations takes now an epistagmatic character and the reference is a schema (a sign).

In the following example, we get indirectly some information about the proportions of the artefacts involved when Wakkerman remarks that the “sharp particles” and the “long curly dreadlocks” that can be used in the Christmas tree. Wakkerman is providing the middle presentations, which are going to be the key back to an anthropogony:

Milling and drilling is now a piece of cake. Once this step is done we need to make another jig where we can put the crankcase on and manufacture the crankcase hole with a little undersize (later more about why). Here you can make either more small sharp particles or (with the right feed and revolutions) long curly dreadlocks (over 2 meter). They fit nicely in the Christmas tree and you’ll surprise friend and enemy with it.

Later more when the next step is accomplished.

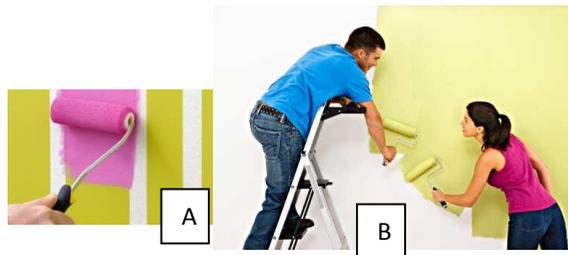
At the end Wakkerman reaffirm the anthropogonomic aspect of his teaching with a new panorama of the workshop and indirectly, of the artisan character of it. Wakkerman's eidetic conjecture process could be summarized as the chain of conjectures of Presentation 86:



Presentation 86: From pure description to a tagmatic-mathetic conjecture, then to an epistagmatic conjecture and then back to pragmatic conjecture.

Chapter 9: History and action

Gestural is the name I have given to the presentation that makes action possible through closing the gap between introspectivity and projectivity converting the *enigma* into praxis. Gestural is the sign that has the exact informative relevance that opens for action transcending pure communication. For example, answering the question “How to use a brush” Presentation 87 (A) is gestural while (B) is not.



Presentation 87: Two signs: but only (A) is a gesture.

Presentation 87 (A) and (B) reveals the difference that I make between what is *gestural* and what is *re-presentational*. Both Presentation 87 (A) and Presentation 87 (B) are presenting a technognomy (the technognomy of painting) but only Presentation 87 (A) is gestural. This subtle difference in the quality of a presentation has important consequences for the understanding between technognomy in general and science. Presentation 87 (A) and (B) are both signs answering to different questions. Presentation 87 (A) answers the question of How-to-do and Presentation 87 (B) answers the question of How-to-explain. We can ask us which of these answers comes first. In *Question Concerning Technology* from 1954, Heidegger argues, “Technology is ontologically prior to science”, and here we have the Heideggerian move to a metaphysical understanding of technognomy. That

means that for Heidegger Presentation 87 (A) is prior to (B). The Heideggerian ontological priority of the gesture over the re-presentation, is a central theme in the work of Don Ihde; a theme that Ihde resumed in the concept of *technoscience*; Ihde explains:

This ontological priority of technology over science, leads Heidegger to strongly recognize that all modern science is instrumentally, or technological embodied [...]. No instruments; no science.⁵⁷

Putting Don Ihde in my terms, I will say that gestures precedes re-presentation, in the sense that it provides science which an *introspective* lifeworld. We must here understand this lifeworld as the “blind” world of action, the place in which introspection and projection merge to produce material results; this is the moment of the suspension of time. Ihde defended this thesis already in 1983. Scientific knowledge need to be connected to the meaningful use of instruments and experimental devices. In this context, Ihde developed in *Bodies in Technology* from 2002, the concept of “epistemology engine.” Technognomies becomes now epistemological paradigms of technoscience. In *Bodies in Technology*, Ihde introduces the case of the *Camera Obscura* as an example of epistemological engine.⁵⁸ 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*:

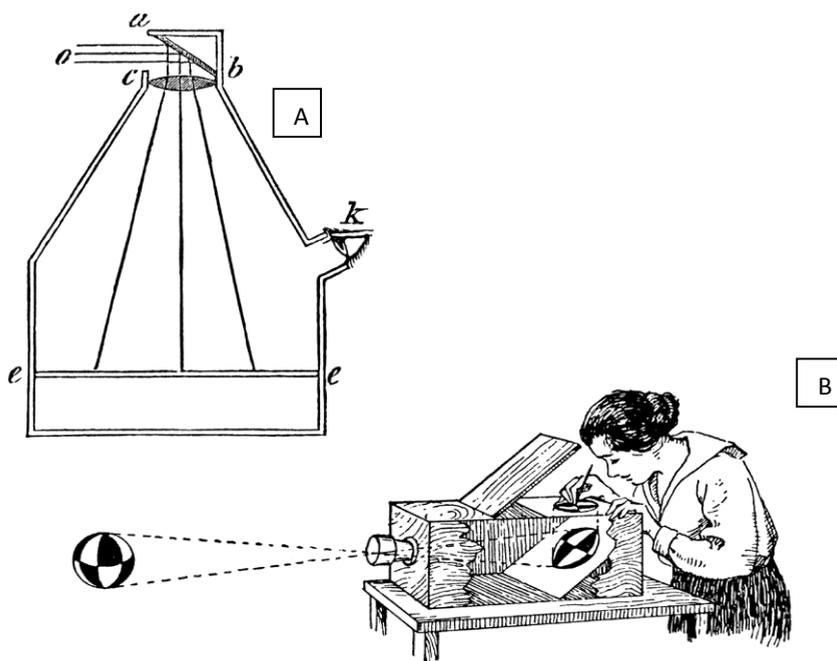
What, now, do these developments show regarding my chosen variables of embodiment, technologies and technoscience practices? First, as noted, the instruments, technologies, are obviously essential and necessary for the production of the scientific knowledge now emerging from the ‘new astronomy.’ If one *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.⁵⁹

⁵⁷ Ihde, Don. *The Peking Lectures*. Ihde quotes Heidegger.

⁵⁸ Ihde, Don. *Bodies in Technology*; p. 71-75.

⁵⁹ Don Ihde. *The Peking Lectures*. Chapter Three.

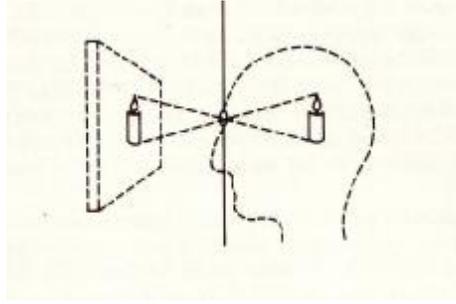
Presentation 88 (A) posit a *gestural* presentation of the *camera obscura* (the human eye (k) is posited as “seeing” into the camera) adjusting the informatics level to the presence of the human “eye” to answer the question of How-to-do. Presentation 88 (B) is a *re-presentation* aimed to explain the *camera obscura*. Both are obviously signs, Presentation 88 (A) is a “scheme” in which the “eye” is a pictogram and Presentation 88 (B) is a painting.



Presentation 88: Gestural (A) and re-presentational (B).

Are these presentations participating in the conjectural chain that Ihde and Selinger describe as an epistemological engine? Certainly, especially Presentation 88 (A) which inspire to projectivity.

According to W.J.T. Mitchell, Presentation 89, which is positing the object and its mental image, is the same in Aristotle, Hobbes, Locke, and Hume. It is conceived, “as a mirror, a *camera obscura* or a surface for drawing or printing”.



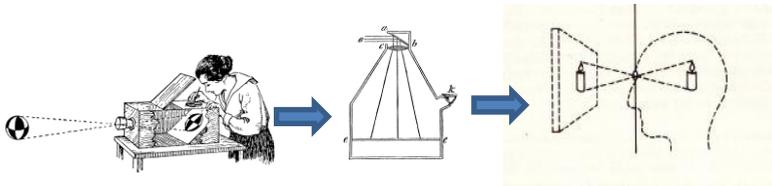
Presentation 89: W.J.T Mitchell 's *palimpsest*.

About Presentation 89 W.J.T Mitchell wrote:

The figure should be read as a palimpsest displaying three overlapping relationships: (i) between a real object (the candle on the left) and a reflected, projected, or depicted image of that object; (2) between a real object and a mental image in a mind conceived (as in Aristotle, Hobbes, Locke, or Hume) as a mirror, *camera obscura*, or a surface for drawing or printing; (3) between a material image and a mental one. (It may help here to imagine the diagram as three overlapping transparencies, the first showing just the two candles, the left one real, the right one an image; the second adding the human head to show the mental introjection of the depicted or reflected candle; the third adding the frame around the "real" candle to make it mirror the imaginary status of the candle on the right. I assume, for simplicity, that all optical inversions have been rectified.) What the diagram displays as a whole is the matrix of analogies (particularly ocular metaphors) that govern representational theories of the mind. In particular, it shows how the classic divisions of Western metaphysics (mind-matter, subject-object) translate into a model of representation, the relation between visual images and the objects they stand for. Consciousness itself is understood as an activity of pictorial production, reproduction, and representation governed by mechanisms such as lenses, receptive surfaces, and agencies for printing, impressing, or leaving traces on these surfaces. This model is clearly subject to a wide variety of objections: it absorbs all perception and consciousness into the visual and pictorial paradigm; it posits a relation of absolute symmetry and similitude between mind and the world; and it affirms the possibility of a point by point identity between object and

image, worldly phenomena and representation in the mind or in graphic symbols. I present this model graphically, not to argue for its rightness, but to make visible the way we divide up our universe in common parlance, especially in that parlance that takes sensory experience as the basis for all knowledge.⁶⁰

W.J.T Mitchell's *palimpsest*, (by definition “an object, place, or area that reflects its history”) is a god example of the final process of the conjectural extrapolation that Ihde calls epistemological engine. A possible series of imagognomies that works as an epistemological engine could be the following:



Presentation 90: The epistemological engine as eidetic conjecture.

Case studies: epistemological engines as eidetic extrapolations

We have said that when you are confronted with the alter Ego acting through A, the action itself implies that what the alter Ego does, is done because *it can be done*. Otherwise, it would not be an action towards A at all. At the same time, the action through A, takes over the mind and the alter Ego become “you”. You are personalizing the action on A learning through the acting of the alter Ego. There is no place for introspectivity in gestural presentations at all and therefore you cannot *reflect* on what you are doing to *explain* why you do that you are doing when you act through A; the acquired experience is fully embodied as pure pragmacity. This experience is lost

⁶⁰ Mitchell, W.J.T. *Iconology. Image, Text, Ideology*. The University of Chicago Press, 1986; p. 15-16.

because it cannot be recollected as memory either. Because when acting “you are not”, you cannot have any possible recollection of what you did. Actions are ontologically out-conscious that is their essentiality. Acting then, does not belong to “the past” but to the “done”, they are pragmatic facts, which are being done in a do-time. Of course, in the mode of the explanation, this do-time becomes “chronological time,” but the action itself “lasted do-time”. Making conscious your acts, when explaining, implies then, a transcription process from do-time to chronological time; from gestures to re-presentations.

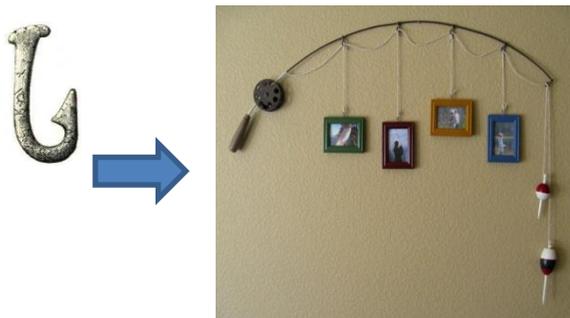
In an epistagmatic conjecture, the situation is very different. When you are *reflecting* on the action on A, you are act-reflecting on that action. Let us call B this new act (the reflection on the action through A).⁶¹ You can explain How-to-do with A recurring to the form of an *explanandum* and *explanans* in a B-chain of conjectures. Consequently, it is possible to make a pragmatic conjecture from introspection only if it is imbedded in an epistagmatic conjecture. The explanative question: “How can this be done?” can only be answered as “It can be done, *because* that and that.” It is not possible to *explain* How-to-do without changing to a [because-?] conjecture. Of course is possible to show-How-to-do through the action of doing it in front of others, *transforming you into a sign*. But, in this “showing How” to others, you are demonstrating and opening for action and not necessary opening for explanation. By the same reason, epistagmatic conjectures are *delayed* pragmatic conjectures. That is why pragmatic conjectures are prior to science; you can never get a [because-?] answer independently from an earlier embodied [to-do-?] answer. This transcription process is the foundational process of truthfulness or fidelity of the interpretation of facts.

Asking about Why-something-works—for instance, procedures, methods, machines, etc.—implies an epistagmatic transcription of the praxical. For example the question: “Why a hammer is adequate to beating a nail?” searches for an answer that *explains* the cause-effect physics of hammering. In this case, the question is constructed on an *explanandum* and an *explanans* about a praxical experience making a *pragma-to-epistagma* conjecture; from *usefulness* to the *cause-behind-usefulness*.

⁶¹ You cannot explain Why you are reflecting in that manner on B either. However, you can *explain* how you acted through A as you did before converting the reconstruction of the How-edicity into a Why-edicity.

The opposite *epistagma-to-pragma* question can be exemplified with the question about the *usability* of something *truthful*. For instance, “How can I use the law of the lever of Archimedes to move a heavy object?” In this case, the question is constructed on pragmatic conjectures. By the same reason, asking about How-to-implement scientific laws, mathematical truths, and even, administrative regulations and political or religious commandments, implies the implementing of pragmatic conjectures on epistagmatic results. Observe that the pure-sign presentation chain of the epistagmatic conjecture must reduce the over-dramatization of the sign until the sign can open for action.

At this point, a technogmy is not only some “effective procedure” or structure of human action that achieves a practical result, but much more than that, some specific technogmic procedures become *essential* metaphors for the performing of epistagmatic cluster of conjectures. For example, different technogmic variants as fishing with *net*, *angle* or *spear* invite to different cases of epistagmatic extrapolations. Conjectures based on the anthropogmy of fishing imply to attach to a transcendent dimension—the *submerged world* in which the fish exists “without being seen”, only perceived *towards the fishing tool*. However, each kind of technogmy gives a specific kind of syntagmatic reduction and opens for different epistagmatic conjectures. For instance, the fishing-conjecture by angling, gives a one-to-one synapse; angling is the work of individuals directed to other individuals.



Presentation 91: Fishing with a crook out in an “underwater” dimension.

The metaphor of fishing, (Presentation 91) associates to “a world attached to a line” that permits the retrieving of an invisible, “submerged”, individual (an item from another dimension than the dimension of the anchoring reference). Each time, the conjecture opens for a *discovery* of an individual, which is a *surprise*. The “experimental” character of fishing is confirmed by the surprising element involved in it.

At the other hand, the metaphor of fishing with a *net*, associates to e.g. the eidetic development of the table or matrix (Presentation 92). Fishing with a net create a plurality of items for each individual act.



	1	2	3	4	5
1	f	e	d	b	c
2	e	a	h	u	w
3	z	y	c	j	b
4	a	d	e	p	v
5	d	m	n	b	a

Presentation 92: Netting in Olaus Magnus *Historia om de nordiska folken* and a table.

The meaning of the “table”, as the “arrangement of numbers or other figures for convenience, is recorded from late 14 century.⁶² Conjectures made by tables are conjectures that connect *one-to-many* and *many-to many* individuals.

Spear fishing –in which the fish is almost at the superficies of the water and can be seen by the fisherman, is more like hunting with spear, because it implies that the fisherman and the fish are at the same dimension. These technognomies opens for epistemologies that could be described as “technognomies of the harpoon” (Presentation 93).⁶³

⁶² Online Etymological Dictionary: <http://www.etymonline.com/>

⁶³ “Harpoon” is a flow-level traffic generator. It uses a set of distributional parameters that can be automatically extracted. From Netflow traces to generate flows that exhibit the same



Spear fishing. <http://www.old-picture.com/hopi-index-001.htm>



Harpoon: A Flow-level Traffic Generator.

Presentation 93: The harpoon as epistemological engine.

Fishing technognomies in some sense are analogue to the technognomies of “trapping” because they both implies *waiting to see which item has been trapped (fished)*. Trapping is *discovering and experimenting*; it implies that no exact anticipations about the results of the conjecture are possible.

Traps (as fishing and hunting) are culturally universal and seem to have been independently invented by every culture. As the technognomy of fishing, traps allows conjectures from other dimensions—in this case from *other-time* than that of the anchoring reference. You charge the trap and leave it; then you come sometime after and look what has been trapped (Presentation 94).

statistical qualities present in measured Internet traces, including temporal and spatial characteristics. Harpoon can be used to generate representative background traffic for application or protocol testing, or for testing network switching hardware.

<http://cs.colgate.edu/~jsommers/harpoon/>



Presentation: Kerstin Geier/Gallo Images/Getty Images

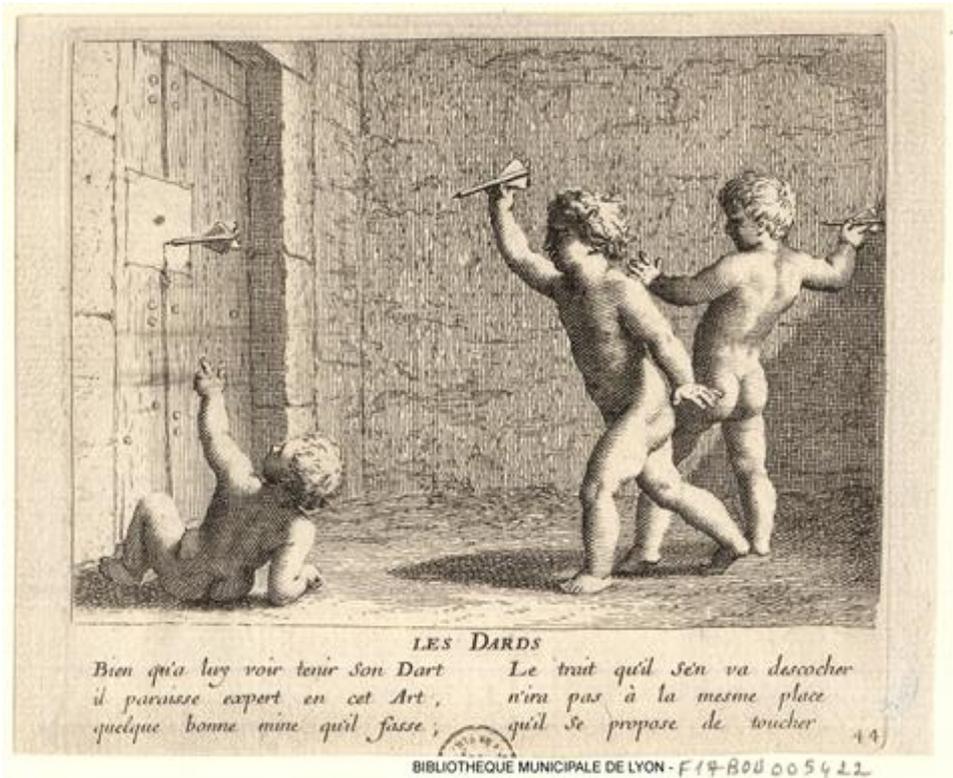


<http://www.hometrendesign.com/totally-new-hotel-concept-superbude-hotel-in-hamburg-germany/magazzine-wall-shelf-for-mouse-traps-ideas>

Presentation 94: Trapping ideas.

Hunting with bow and arrow has been one of the most influential metaphors in history and it is present in almost every scientific and philosophical argument.⁶⁴ For example, the metaphor of “playing with darts” implies favouring the focusing on a specific point in a broader presentation; therefore, it can be supported by *zooming-in* tagmatic conjectures.

⁶⁴ “Technologies—Musics—Embodiments”. Don Ihde. *Janus Head*: <http://www.janushead.org/10-1/>. p. 13.



Presentation 95: *Les dards*. Bouzonnet-Stella, Claudine, 1641-1697.

That technognomies are essential for human culture is obvious in mythology. The case of *Prometheus*, the titan that gave fire to mankind and was punished by the Gods for it can be a good example. “Fire” is the *communicans* and “light”, “warmness”, “energy” are the *communicandum* of this epistemological engine. “Fire” is certainly one of the most powerful epistemological and ontological generators in history. For instance, Plato’s *Allegory of the Cave* based of “fire” could be presented as one of the most influential examples. To this family of anthropognomies belongs the *stove*, the *torch*, the *lighthouse*, the *lamp*, etc. The torch and the lighthouse are guiding, illuminating man’s way to wisdom. These technognomies are not searching for answers about particular objects but are focusing on generalities. The object of light is the pathway, act as the track for consciousness. The stove—and fire in general—heating and illuminating the environment of man, permitted the reunion of the social group and the development of other technognomies as e.g. the technognomies of

cooking.⁶⁵ .

Another important example is that of *gathering*. This has been a typical activity performed by women and children always in groups. Gathering –metaphors can be found in conjectures made collectively by a social group.



Hopi Indians
gathering snakes.

<http://www.old-picture.com/>



Students gathering ideas in “Tower of Babylon”.

http://www.ethlife.ethz.ch/archive_articles/110505_global-tec-alliance_sch/index_EN

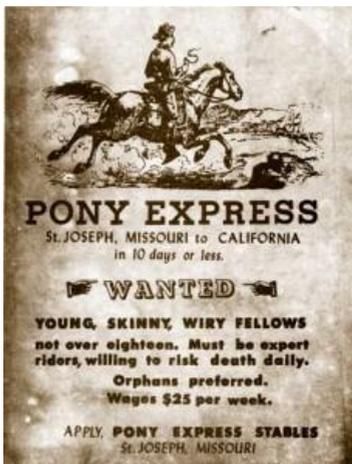
Presentation 96: Gathering snakes and ideas.

Archaic gathering of plants and animals is also the epistagmatic reference of any other technognomy of assembling; for instance *collections*, *lists* and *databases*. Gathering do not focuses on specific points of the lifeworld but on “places”. A “collection” is a kind of conjecture based on the action of docking units according to Where-questions independently of any other consideration.

⁶⁵ See: Borgmann, Albert. *Technology and the Character of Contemporary Life*. A Philosophical Inquiry. Chicago, 1984. Pages 41-43.

Case studies: metaphors of communication as epistemological engines

Other interesting technonomies often working as epistemological engines are the archaic technonomies of communication. For example, the archaic communicative technonomies of mail delivery which connected posts defining zones that are conveniently adjacent to allow an interference. It was a system for transporting letters and other artefacts from written documents to small packages (Presentation 97). Paraphrasing Foucault's describing of "convenientia"—as a kind of conjecture based on resemblance—it is possible to affirm that the post stations of mail delivery were sufficiently "close to one another to be in juxtaposition; their edges touch, their fringes intermingle, and the extremity of the one also denotes the beginning of the other."⁶⁶ The pony express could be an example of such communicative technonomy.



Presentation 97: *Convenientia*- The Pony express.

<http://www.theprisma.co.uk/es/2010/09/03/el-caballo-correo-postal/>

Another example of *convenientia* could be that of pigeon's mail communication posited in Presentation 98, which communicates through homing pigeons.

⁶⁶ "This word really denotes the adjacency of places more strongly than it does similitude. Those things are 'convenient', which come sufficiently close to one another to be in juxtaposition; their edges touch, their fringes intermingle, the extremity of the one also denotes the beginning of the other. In this way, movement, influences, passions, and properties too, are communicated." *The Order of Things*, p.17.



Presentation 98: *Convenientia*: Pigeon post.

<http://www.filaposta.com/glosario/tiki-index.php?page=Paloma%2C+correo+por>

In the case of the technognomy of smoking signals, the tagmatic docking is free from the connectivity towards places. In this case, the *connectandum* (the message; that which wants to be communicated) and the *connexionem* (the smoke signals; the bearing noemata of the communication) are not adjacent but in *concomitance*. In Foucault's words: "Rather as though the spatial collusion of *convenientia* had been broken, so that the links of the chain, no longer connected, reproduced their circles at a distance from one another in accordance with a resemblance that needs no contact."⁶⁷ In this case, the ordognomic units became representatives of a variety of unexpected connections that associates to distant connectedness. It is as if the *aemulatio* of Foucault, which is "a sort of convenience that has been freed from the law of place and is able to function, without motion, from a distance"⁶⁸ could be an epistemological consequence of the *smoke signals* as epistagmatic conjecture (Presentation 99):

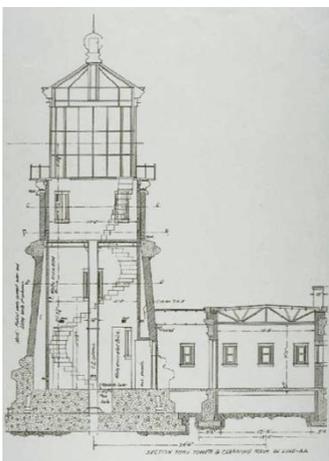
⁶⁷*The Order of Things*, p.19.

⁶⁸*The Order of Things*, p.19.



Presentation 99: *Aemulatio - Smoke signals*. By Frederic Remington.

In *Analogy* connectivity transcends space; it can be associated to a *chain of lighthouses*; the *connectandum* (the message; that which wants to be communicated) need to be integrated to the *connexionem* (both the chain of lighthouses along the coasts and their light signals). “In *analogy*, *convenientia* and *aemulatio* are superimposed. Like the latter, it makes possible the marvellous confrontation of resemblances across space; but it also speaks, like the former, of adjacencies, of bonds and joints.”⁶⁹



Presentation 100: *Blueprint of Split Rock Lighthouse*, 1908, Ralph Russell Tinkham; Minnesota Historical Society Collections.

⁶⁹*The Order of Things*, p.21.

Sympathy, the last case of introduced by Foucault, could have inspired the technognomies of modern electric and electronic communication: “It can traverse the vastest spaces in an instant: it falls like a thunderbolt from the distant planet upon the man ruled by that planet”; with Foucault’s words:

Lastly, the fourth form of resemblance is provided by the play of *sympathies*. And here, no path has been determined in advance, no distance laid down, no links prescribed. Sympathy plays through the depths of the universe in a free state. It can traverse the vastest spaces in an instant: it falls like a thunderbolt from the distant planet upon the man ruled by that planet; on the other hand, it can be brought into being by a simple contact—as with those ‘mourning roses that have been used at obsequies’ which, simply from their former adjacency with death, will render all persons who smell them ‘sad and moribund’. But such is its power that sympathy is not content to spring from a single contact and speed through space; it excites the things of the world to movement and can draw even the most distant of them together.⁷⁰

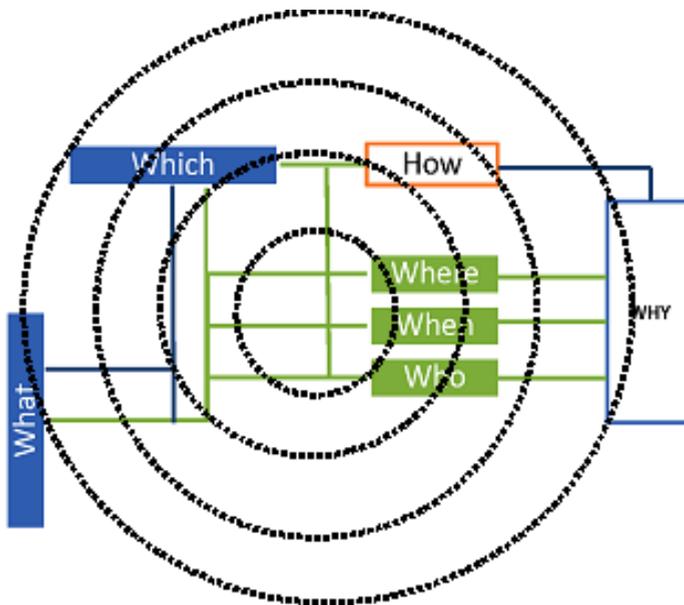
In this case, communication transcends space and time, the *connectandum* implicate the *connexionem*. It is the case of Marshall McLuhan idea that the medium of communication is the same as the meaning imbedded in it (“the medium is the message”). McLuhan’s example is the electrical light, because of its property to work as pure information. The electrical light is both a medium of communication and the message itself (a media–product).⁷¹

⁷⁰ *The Order of Things*, p. 23.

⁷¹ Marshal McLuhan. *Understanding Media: The Extensions of Man*. McGraw Hill, NY, 1964.

Epilogue

Finally a very short mention to the theme of this book through Presentation 101, which could be a text-like “explicative” presentation of the Big Bang of history:



Presentation 101: The propagation of eidetic imagery after the *Big Bang* of history.

List of names and terms

In this book I wanted to achieve a displacement of meaning following the simple rule of avoiding the use of the suffix “logy” in terms as “technology” and substituted them by the suffix “gnomy” (from Latin *ordo* for ‘order’ and *gnomy* from the Greek *gnomon*, “means of judging or interpreting”). Because my research is essentially ontological, I will avoid any association to epistemological approaches. The following is an explanation of the meaning of my terms.

<i>Anthropognomic presentations</i>	
are the repertoire of eidetic contents that constitute humans as just “humans”.	51
<i>Conjecture</i>	
form late 14th Century, meaning “interpretation of signs and omens	49
<i>demonstrative presentation</i>	
a presentation that posit an action. By definition it is "historical."	54
<i>Descriptive grammar</i>	
consists on descriptive bricks that answers the foundational questions about What, Which, Where, When and Who.	31
<i>eidetic conjecture</i>	
is the resulting meaning of a conjunct of many presentations (also synapse).	49
<i>eidetic motor</i>	
a multistable presentation of a technology	45
<i>enigmatic presentation</i>	
adequate to a historical presentation	24
<i>epistagma</i>	
epistagmatic synapse (from Greek <i>episteme</i> , meaning <i>knowledge</i> and <i>tagma</i> meaning <i>something arranged</i> , consists on the assigning of signs to the presentations, creating a relationship of priority (called <i>causal</i>) between them.	57
<i>gesture</i>	
the group of signs that open for action.	55
<i>historical extrapolation</i>	
are based on ontic intuitions.	21
<i>historical presentations</i>	
are always demonstrative and never descriptive.	13
are testimonial or non-testimonial	13
<i>Historietaxi</i>	
The linear ordo of Natural History	29
<i>historiognomy</i>	
(Gnomic History). I have substituted the suffix “logy” with the suffix “gnomy”, from Latin ordo for ‘order’ and gnomy from the Greek gnomon, “means of judging or interpreting” of “what is happening”, to mark this difference.	28, 29
is the name of the metaphor of a “cultural explosion” which associates history to an expansive and rapid proliferation of imagery, from a very intense and simple hypothetic chaotic	

moment called the Big Bang, to a gradually materialized universe populated by different eidetic substances	29
<i>icon</i>	
a description transformed into a demonstration by framing, e.g. the case of the <i>portrait</i>	41
<i>mathetic conjecture</i>	
is a specific form of tagmatic conjecture that relies on Which-to-dock conjectures to provide <i>measurement</i>	71
<i>noema</i>	
is the simplest brick with meaning created by the Big Bang.	51
<i>pragma</i>	
the pragma is the usability of the noema, the meaning of the noema is its usability, pragmatic conjectures are demonstrative and never descriptive.	55
<i>pragmatic conjecture</i>	
is always historical, is the understanding of the way mechanisms works.....	78
<i>Presentation's compactness and porosity</i>	
descriptions are compact and demonstrations are porous	22
<i>Promptitude</i>	
A presentation is always concrete and can only be reached through some fundamental accesses that I will call "prompts". They are the noema, the tagma, the pragma and the epistagma	49
<i>prompts for embodiment</i>	
the noema, the tagma, the pragma and the epistagma.....	50
<i>Propago</i>	
<i>time-scale of technognomic propagation</i> , from Latin, meaning a layer, slip or shoot, offspring, race, posterity.....	29
<i>puzzle analogy</i>	
adequate to a descriptive presentation	24
<i>sign</i>	
a demonstrative presentation that embodied the action.....	55
<i>signature</i>	
<i>signatures are not built on resemblance (tagmatic conjectures) but on praxis (pragmatic conjectures)</i>	68
<i>tagma</i>	
from the Greek, meaning <i>something arranged</i> , from taxis, <i>order</i> and tassein <i>arrange</i> , to describe the embodiment process (the how to dock).....	52
<i>tagmatic synapse</i>	
consists on a series of imagognomies based on embodiment, built on three types of series of presentations <i>joined series</i> , <i>zooming-in and out series</i> and <i>mould casting series</i> , and two grades of accuracy <i>mathetic</i> and <i>pre-mathetic</i>	59

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