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Summary of the Theoretical Work "Wizualne narzędzia myślenia" [*Visual Tools of Thinking*]

The theoretical work addresses the issue of a material dimension of thinking – the discussion centres on the question how a peculiar phenomenon called thinking manifests itself in material culture, in particular in those of its domains that concern visuality. In the discussion, I intend to overcome a dualising method of presentation of the issues undertaken – it is not about differentiation between thinking and its material representation or about determination of permanent relationships between those separate "ontological domains" (like classic concepts aim at this). I place emphasis on the dynamics and lability of processes of materialisation of thinking, I also discuss various, totally prosaic tools that are manufactured and/or used during this process.

I

Chapter one **"Czym może być myślenie [*What can thinking be*]"** is devoted to a discussion how thinking can be presented – following Gilles Deleuze it can be presented as a process of organising and structuring of "chaos" – i.e. a material virtual sphere where virtual molecules (not to be confused with elementary particles) are placed. These molecules combine with each other in different configurations as a result of which various instantiations are formed. According to Deleuze, this combining of molecules is a creative, never complete, never-ending process. Such fields as art, philosophy and science produce instantiations, e.g. works of art, pieces of music, scientific theories, treaties that in a totally material and sensory manner organise and structure the virtual sphere. In his concept, Deleuze distinguishes the virtual sphere ("chaos", a transcendental area – outside conditions of cognition) and the current sphere (all updates, instantiations, completely physical portions of matter that can be found in empirical terms). Hence, the name adopted for the Deleuze's concept: thinking takes place between the transcendental sphere (which is set a priori, not constructed by an entity of cognition), and the empirical, experimental one that are coupled with each other through a network of relationships. From the Deleuze's perspective, empiricism is experimenting, active action that breaks with supremacy of the Reason as the main principle that organises cognition. Empiricism is "a theory of relationships, outwardness of relationships towards their segment".

The realisation of Deleuze's concepts of thinking is the model of a rhizome – a multi-linear, non-hierarchical, well-branched and dynamic (becoming) structure, well-known from the botanic world ("root system", "fibrous root"). It is a relational structure made of tensions, "potential differences" produced by elements creating it. A rhizome can become a model of thinking, narration, reading and/or culture.

Sketching the concept of Deleuze's transcendent empiricism to which I devote a larger part of the first chapter helps me to set a certain manner of presentation of the notion of thinking that is present in the entire book. It is a proposal of considering thinking as a non-conclusive, dynamic and emergent process that does not aim at giving answers, but rather consists in seeking next questions, problems and obstacles. At the end of the chapter, I also mention how important the intersubjective horizon of thinking is, i.e. the need for organising instantiations in such a manner that they can become a communication.

This chapter is a proposal of a "new image of thoughts" as a dynamic process of constructing, increasing the growth of, connecting and uncoupling various threads. I also draw attention to various strategies and tools for organising the chaos that are developed in the course of the dynamics of thinking.

In the sub-section **"Mnogość i wielokrotność [*Multitude and multiplicity*]"** I write about thinking in terms of multitude of multiples, about such thinking that considers at the same time a lot of roads that are not necessarily focused on the aim. I refer to the figure of Archimedes and his predisposition of "thinking in a roundabout way", "spiral thinking". "Multitude is genesis of all thinking". This thought will be discussed in more detail in the following chapters.

I also outline the concept of an active "plural entity" understood as an "acting factor" – this is an introduction to the concept of B. Latour, discussed in more detail in the following chapters.

In the sub-section **"Narzędzia myślenia [*Tools of thinking*]"** I introduce Ludwig Wittgenstein's struggles in searching for appropriate representation for his thoughts. Meanwhile, it turns out that those struggles and attempts themselves led to the development of tools that were shaping the philosopher's investigations. Wittgenstein is another (apart from Deleuze, Derrida, Archimedes) "wandering thinker" presented in this book. This wandering resulting from the search for an appropriate form for thinking reveals the process of construction of tools useful not only in formulating thoughts, but also in starting thinking at all. I understand a tool here as action, technique – the entire process that leads to an update of problems placed in the virtual sphere. Here, I address in short the issue of visualisation as one of the methods for organisation of the "chaos" (from the Deleuze's perspective, see: Chapter 1). At this place the issue of "visual essentialism", i.e. a popular belief that visual experience has a dominant role in our contact with the world, inevitably appears. I attempt to keep from this superstition, dedicating at the same time following chapters to a discussion concentrating on visuality as a tool for thinking. It is purely pragmatic narrowing the area of discussion, while maintaining at the same time awareness of the existence of a broader spectrum of empirical experience.

The sub-section **"Monstrum, drzewo i tabela [*Monster, tree and table*]"** is an interlude – a story about Linnaeus, the creator of taxonomy and attempts to develop visual strategies for dealing with the diversity and proliferation of the natural world. Over the centuries, visual metaphors of complexity have appeared – tree diagrams (dendrograms), tables, grids, compartments, shelves and display cases organising Cabinets of Curiosities. These are the effects of struggle of the virtual sphere, referred to in the chapter one, with the chaos. Although those turn out to be quite inept and insufficient, in particular when monsters – "freaks of nature" appear, matching no classification – those are strategies organising human image about the world, they become a map that makes it possible to more or less orientate in it. It is one of the two interludes in this book that made it possible to introduce next examples.

#Gilles Deleuze and Felix Guattari #transcendental empiricism #virtual and current #rhizome #becoming of thoughts #nomadic thinking vs. settled thinking #thinking using multitude #tool #construction of tools #Ludwig Wittgenstein #systematics #Linnaeus #graphs #monster #tree and rhizome

II

Chapter two **"Inne miejsca [*Other places*]"** is organised around the issues of "philosophy of difference", i.e. such a trend in modern philosophy that criticises classical philosophical positions that assume the existence of identical existence to which all cognition refers. At the same time, it addresses the same philosophical problems as the classical philosophy does and re-defines them. Thinkers following this trend (I discuss Derrida and Deleuze's reflection) aim at finding "difference" – a counterpoint for classical philosophy, that what is radically different towards it, rejected, being on the fringes, on the sidelines of it and therefore extreme.

The philosophy of difference disposes of an assumption present in classical trends of the existence of concise truth as compliance of thoughts with the reality as well as of the existence of things in themselves, which can manifest themselves and learned through this. Centuries-old thinking about the truth – and about opportunities of getting to it through thinking and experience – was defined as metaphysics of presence. This notion assumes the functioning of an ideal model (like Platonic ideas) and its poor copies available to us, and also the existence of the principal sense, Logos, general notions and their primacy over what is individual. Referring to the trend of philosophy of difference, oriented critically towards a tradition of thinking, makes it possible for me to open a discussion on fields completely different than philosophy, to introduce an aesthetic reflection and reflections related to visual culture. This trend suggested an inspirational approach to issues related to an empirical and material dimension of thinking.

The sub-section **"Kolaże i różnice [*Collages and differences*]"** introduces the defined by C. Lévi-Strauss figure of *bricouler* – a do-it-yourselfer who in its activities of organising the world makes a tool from what it finds to hand, on the collage basis "glues together" elements of various provenance, it does not, on the other hand, worry about manufacturing specialised tools. Here, thinking is defined as a *bri-collage* strategy that consists in freely throwing together and gluing together problems often distant from one another as well as in generating relationships and meaning tensions between individual elements. One of the strategies of *bricouleur* is notion-creation – manipulation of ready-made notions in different configurations and/or creation of neologisms. Here, I refer to the notion of difference coined by J. Derrida, expressed in the neo-graphic representation of *differance* where the letter "e" that occurs in the original word is replaced with the letter "a". Such a neo-graphic representation is symptomatic for the Derrida's philosophical strategy who aims at leading philosophy out its own area, contaminating it with "what is not philosophy", at finding difference for it – other place that will enable decentralisation of reflections, its quivering and relocation. Derrida finds this difference in the text graphic tissue, therefore the issue of typography becomes important in his reflection. Replacing the letter e with the letter a activates a complex process of creating notions and deconstruction that is a known Derrida's reading strategy, directed at supremacy of sense and truth.

The sub-section **„Przepisywanie pisma [*Rewriting a writing*]"** presents the interpretation of writing as understood by J. Derrida, breaking with classic understanding of writing as a set of alphabetical characters as well as with superstition dividing a character into visual and sound representation.

According to Derrida, writing is a widely understood cultural gesture, it is all differentiating and systematising processes, falling in the sphere of social arrangements. Writing is an element of interpretation and game, it is not subject to logos or truth. Writing is tantamount to text, or rather to the "text texture" – to a tangle, tissue, network where no element, like in the Deleuze's rhizome, exists by itself for itself. This networks is composed of characters (phonemes and graphemes), differences between them and traces that they leave in each other.

The sub-section is supplemented by illustrations showing Derrida's typographical experiments (the books "Margins of Philosophy", "The Truth in Painting", "Glas").

I interpret so understood writing as a tool for thinking – the process of building tissue of meanings, thinking as writing, struggling, tracking traces.

The sub-section **"Jak działa maszyna pisma [*How the writing machine works*]"** introduces the Derrida's concept of grammatology – an alternative science about writing, overcoming understanding writing as visualisation of and/or a supplement to speech.

The Derrida's concept is founded on numerous hermetic notions developed for its purposes that I attempt to explain in this chapter. Derrida also criticises favouring a sound layer established in the history of thoughts as a less direct "closer thought" (phonocentrism). This sub-section is also vivisection of the Derrida's deconstruction strategy – a method in which notions can be interpreted and their growth increased. Deconstruction is a type of reading of actually each culture text, which is an alternative to the traditional hermeneutical reading (Gadamer) aiming to the source and truth surmised in the text. It is about a kind of reader's immersion in the text, and not about giving it fixed senses. Writing, free from logos and truth, needs to be subject to interpretation, it becomes the object of game. Deconstructivist reading is a process, adventure, it does not at the same time aim at comprehensive reading the text or at extracting a comprehensive sense from it, it settles for with a free drift towards senses dispersed in other texts that leave mutual traces in each other. It is owing to this dispersion and proliferation of the sense, deconstruction is possible at all. This process, determined by Derrida as dissemination, consists in creating and disappearing of notions depending on contexts.

The strategy of deconstruction formulated by Derrida opens a philosophical reflection ot areas completely external towards it, incorporates visuality as one of the threads in the complex text texture, places meanings also in the manner in which text materialises. Text understood as a product of technologies – the method a printing press operates turns out be margins for philosophy on which new thinking adventures can take place.

#Jacques Derrida #philosophy of difference #bricollage #deconstruction #writing #difference #grammatology #text texture #-graphy #phonocentrism

III

Chapter three **"Między teorią a empirią [*Between theory and empirism*]"** addresses issues of pragmatic and mundane strategies of organisation of thinking so that it can become part of an intersubjective discourse, in the form of an inscription. This chapter draws attention to an empirical and material dimension of building the edifice of knowledge.

The sub-section **"Przekształcanie myśli w rzeczy [*Transforming thoughts into things*]"** introduces B. Latour's concepts – the so-called Actor-Network Theory that dismantles canonical dualistic division into what is mental and material, into mind and world, into theory and empirical knowledge, into what is ideal and real. This theory assumes that these divisions are an illusion, that these categories do not create opposite poles or separate "ontological domains", but they are put in a network of material and semantic relationships. This network is made from dynamic relationships and transformations

between a lot of, temporary points – human and/or non-human factors. Latour calls these factors actors (and/or actants) to stress their active function (lat. *actor* – the one that acts). Actors that can also be called agents act generating network relationships – hence the enigmatic name of this theory. Latour stresses that actors may be not people, their identity is defined through impact – each factor that impacts creating a network of relationships has the status of an actor. He also notices that building a network of relationships consists to a large extent in generating the so-called inscriptions – all material traces, accompanying mental processes, making out of them the form of an intersubjective communication. Those are, e.g. notes, sketches, diagrams, scientific texts, graphs, plans, columns, lists, inventories, dictionaries and also test samples, display cases, prototypes, computer simulations and interfaces of computer databases, etc. An inscription is translation of what mentally has a mark, archive, note, trace. An advantage of an inscription is that they are economical: they compress thoughts, make that they can be transferred in time and space, and occupy relatively little space. Visual forms, including craft of reading and writing, are exceptionally effective in this respect. Inscriptions in themselves can be actors – their impact consists in accumulating and distributing contents.

In his concept, Latour draws attention to a material dimension of epistemology. According to him, the development of science is strictly coupled with visual culture that delivers to scientists practical and handy, often very simple tools, owing to which they can deal with a chaotic cloud of data bringing it to a more organised stream of information. It turns out that these tools shape processes of commanding, applying and structuring, these are them that are responsible for the shape of a scientific discourse – for how various contents are communicated, accumulated and distributed. They are not so much supports for thinking as an active factor shaping cognitive processes. In the book, profiles of selected thinkers of different times are introduced – each of them in their own way not only operated inscriptions that had enormous impact on their entire scientific works, but also addressed an issue of this impact, interaction of creation of inscriptions and thinking, and also exciting difficulties and aporias, conditioning this process ("There is no thinking without aporias").

In the sub-section **"Zręczne połączenie [*Handy combination*]"** I discuss properties of inscriptions such as opportunity of combining them, "mobilising" them, that is lossless change of the position, "reducing" them, that is bringing to small-sized forms of record and simultaneous, synoptic collating and collecting them. Collating, comparing and combining inscriptions become possible owing to a simple tool, the so-called "optical cohesion", that is placing inscriptions in a common space owing to which relationships that happen between them can be noticed. According to Latour writing, printing and imaging are effective strategies of creating inscriptions: they efficiently mobilise and reduce contents as well as enable their compilation. Latour gives an example of

a linear perspective that makes it possible to "draw things together" – to distribute things in Euclidean space, establish their hierarchy and relationships. Also a traditional code book is a common place where various threads and thoughts intertwine. I refer to an example of an astronomer Tycho Brahe who not only watched the sky or drew maps, but also compared his observations and records with inscriptions of his antecedents and other astronomers of his times. A model of the Universe prepared by him is a compilation of Ptolemaic geocentrism and Copernican heliocentrism. Brahe's research work consisted not only in watching the sky, but also in interpreting inscriptions – letters and maps of Copernicus and Ptolemy, other astronomers, and of Aristotle's accounts.

The sub-section **"Inskrypcje Archimedesa [*Archimedes' Inscriptions*]"** is another interlude, introducing to the work an element of "ethnography of inscriptions", as Latour called analysis and description of individual culture texts that can be interpreted as inscriptions. A history of the Archimedes' manuscript reveals not only the manner how the ancient thinker investigated his theses and how he expressed his thoughts, but also tells stories about technological transformations of means of communication throughout the centuries (from a scroll through a code book to X-rays and other pictures documenting the present shape of the manuscript). The manuscript has survived to present times as a palimpsest – the Archimedes' text, copied out by a medieval scribbler was later removed from code parchment pages on which a prayer was then printed. Reading the removed text required using advanced imaging technologies, owing to which it was possible to reconstruct barely remaining traces of the first layer of the text. Among numerous recovered texts there was also the treatise "On the Method" that reveals Archimedes' geometrical sketches and visualisations. Analyses revealed that the mathematician used them as mathematical equations, they were object in nature and were traces of his investigations. Those drawings were an integral part of reasoning and of constructing concepts.

The sub-section **"To nie jest fajka [*This is not a pipe*]"** touches upon an issue of loss connected with compression that takes place in the course of transformation of content into an inscription. Here, I discuss the Alfred Korzybski's concept, called general semantics, according to which differentiation between what is described (territory), and description itself (map) is important in epistemological terms. An aphoristic metaphor of a map and territory, used by Korzybski, determines the relationship of language – map to the reality – territory. Compared to other concepts discussed in the book (Deleuze's, Derrida's, Latour's ones), the Korzybski's concept is distinguished by the fact that he acknowledges the existence of source reality to which our cognition refers. It is the concept founded on mistrust of identification of the world with its description – a definition with an object being defined. Speaking of general semantics

attention should be paid to the fact that the term "semantics" should not be, however, understood here as it is understood in linguistics, as a field that examines meaning in a language or the mark – world relationship. According to Korzybski, general semantics is rather a concept that examines relationships that occur between a human, their physical and symbolic environment. Semantics should therefore be understood as evaluation – examination of features, values that appear in this relationship. General semantics is not only about words and symbols, but also about significant reactions in general that occur at a psychological and neurological level. Hence an interdisciplinary vector of general semantics. Actually, Korzybski criticises an "Aristotelian system of a language" as an inefficient one compared with reality described by new scientific discoveries, e.g. Einstein's theory of relativity, Heisenberg's theory of uncertainty and quantum physics, drawing attention to processual and changeable nature of reality. The famous painting by R. Magritte entitled "To nie jest fajka" showing at the same time an object and a caption contradicting the object is a visual rebus that can be interpreted as painting synthesis of main assumptions of general semantics.

The sub-section **"Zobaczenie na nowo tego, co stare [*Seeing the old anew*]"** shows examples of projects of "new languages", often based on visualisation, aiming at sketching a map that is more precise and more adequate to reality. Those are highly utopian projects, aiming at the same time at developing new writing for thoughts. Here, I discuss the e-prime language of A. Korzybski as well as *lingua characteristic* by G.W Leibniz to whom Korzybski refers. Using description and reconstruction, I also introduce the so-called structural differential, a mobile graph invented by Korzybski for the purposes of discussing assumptions of general semantics during his own lectures. The concept of "general language", analysed also by J. Derrida in "Of Grammatology", although utopian, often results in brilliant inscriptions that become confirmation of inevitable coupling thinking and action.

#Bruno Latour #Actor-Network Theory #inscriptions #relationism #reducing strategy #ethnography of inscriptions #Archimedes #Alfred Korzybski #map and territory #general semantics #structural differential *#lingua characteristica*

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The text of the publication is montage of presented concepts each of which in its own way disposes of the issue of materialisation of thinking and putting it therefore in an intersubjective universe of communication. Collating them in the book enables to trace back their common threads and differences that occur between them, stimulating for further investigations and interpretations. The text itself is not an attempt to prove one primary thesis – it rather serves speculative discussions, it itself is a "laboratory of thinking" – a material, physical space where elements of different provenance meet:

thoughts expressed in texts, illustrations and visualisations of presented concepts, and also archives and documentation of projects (in the supplement "On the Method"). As befits a laboratory, the book is space for mental experiments where various reactions of associations and contamination of different concepts occur. These experiments have their continuation in the realisation of the project "On the Method" which is a set of artefacts, being peculiar synthesis of issues being analysed in the book. Especially, this project refers to understanding expressed in the book of the method as wandering and experimenting, aimless search, non-conclusive thinking and, above all, putting this which seemed well-known to the critical thinking test. Some works, being a part of this project, evoke also spectacular errors of science – blind alleys of natural history (*Canali*, *Monstrum, Meteory*), whereas other, in turn, tell about doubt – intimate struggles of the mind trying to find an outlet path for thoughts in writing (*Korekta*) and/or an utopian attempt to erect a maximally ergonomised "temple for thinking" (*LAB*).

These works themselves are, to a large extent, experiments – they refer to very simple experiences presented during physics classes in a primary school. These are experiences that are assumed to explain how the nature world functions. However, they make this in a very approximate, propaedeutical manner, which is merely an introduction to thinking.

Exhibition "O metodzie [*On the Method*]"

On the Method is a project of an auto-curator exhibition including artistic projects touching on the issue of a relationship that there is between abstract thinking and practical action. Projects collected at the exhibition are the effect of observations and interpretations of cognitive and scientific strategies that consist in generating organoleptic, visual tools that support research or conceptualisation processes. For numerous thinkers, these tools turned out to be essential in creating concepts and theories and/or in making scientific discoveries. The exhibition introduces those of them that are a trace of searches, mistakes, doubts and falsification – essential events on road to cognition.

The exhibition will have a collage structure – individual projects, implemented in different media, will create a network of mutual references. Projects will be accompanied by short descriptions – telling histories and sketching contexts author's narrations with which a given project is connected. Because each of them is a segment – individual preparation – taken from a history of a human thought.

The exhibition narration is between exhibits and texts, it is around the question: do scientific instruments and methods of description of the world equip us with reliable knowledge or they are artefacts open to interpretation? Perhaps constructing knowledge requires that areas of uncertainties, deterritorialization, foreign elements appear. It is worth examining cognitive practices, knowledge generation processes themselves that do not consist in creating stable theories or judgements, but concentrate on arduous construction of tools and laboratories.

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The method is a process – road (gr. *hodós*) that one needs to travel to collect, organise and prepare research material, and also to get acquainted with the world and determine their own position in it. Already Archimedes wrote about the method – in his treatise in a language of objective geometry he expressed theorems about multitude and infinity. Straight lines, sections, circles and spirals were universal approximations of abstract notions, like contemporary mathematical equations. According to the Archimedes' method, both operating notions, and manipulating physical objects (figures drawn in the sand, mechanical models, signs written down in a scroll) turn out to be equal modality of thinking – asking questions, investigating, doubting.

Wandering and confusing tracks – what are they for the mind that looks for a lucid and clear presentation of a thing, the Archimedes' point of support, that would make it possible to lift the weight of learning and describing the Universe? Is confidence and truth the destination of thinking or merely aiming at it, restless moving, the state of quivering superposition constitute thinking?

A nomadic thought moves along a roundabout road, not straight – through peculiar mental experiments, multiplication of paradoxes, mistakes, falsification and omissions. On this road, mankind cognitive efforts leave a thick layer of inscriptions – completely material traces of mysterious mental processes. Following them, we read about getting lost, failures and inspirations – events essential on the road to cognition.