

Keywords: Variantology, Deep Time Research, Diagrammatics, Potential Space, Diagrammatic Thinking, Rhizomatic Thinking

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Variantology, Techno-Ecologies and a Plea for an Applied *Cultura Experimentalis*

„With his experiment the creative human being, anyway an outsider, attacks a group of people, which aspires 'assimilation'.”¹

I.

The enormous unloading of the extreme suspense between nature and technology, which has been raised systematically in the 20th century, marked the beginning of the 21st century. Ironically it happens in Japan, whose population already experienced the disastrous dimensions of destruction of aggressive nuclear technology in an ontological quality; again, it had a nuclear disaster whose consequences are not foreseeable yet. Propagated as maximum-security power plants that provide the cleanest and most effective generation of energy of all time the nuclear techno-economical aggregates break and create an uncontrollable maximum of lethal dirt. The purpose of these monstrous power plants – the generation of electricity – collapses after a massive intervention of nature and gets transformed into an uncontrollable form of energy release. The Japanese island, including significant parts of the ocean and its fragile incrustation got poisoned tremendously. Nothing that could be conducive for the ecological cycle of earth will ever be regained out of this type of waste. The operators of the nuclear power plant and the techno-politicians recklessly and greedily risked the infirmity of innumerable subsistences for many generations. And even after the disaster in Fukushima they do not stop making allegedly reliable statements about facts that exceed their influence by far.

Considering the mightiness of these liars, the most technologically advanced communication systems have failed completely in this situation. The information about the techno-political coherences that we have received within and beyond Japan could not even scratch the surface

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of the disaster in a critical way. We only received the information that could be neither negated nor denied any longer. One can compare this minimal supply of information with the treatment of a creature that only receives the sphere of operations and the amount of food that ensures its bare existence. A real exchange of information did not occur and not even the intervening telematic hackers were able to obtain access to the accurately shielded machinery of power of the global atomic power lobby.

We are facing a seemingly paradoxical situation. On one side of the contradiction are *the media*. In most regions of the world, there is no shortage of media anymore. They are available in abundance. Because of the tremendous efforts, which the media institutions had to make during the 20th century to mend the cracked situation with lethal wars, they got exhausted. An update of the promise, that the media could create another or even a better world seems ridiculous from our perspective of technologically based markets. They seem to be outworn as utopian replacements in the once hegemonic regions of North America, Western and Northern Europe. Since the media and governmental institutions co-operate, the media are not suitable for revolutions any longer. The media became an essential part of functioning social hierarchies, from above and from below, of the might and the countervailing power. They became systemic. Nothing moves on without them in the thing that the remaining feuilletons carelessly and unifying call society. They are part of the everyday violence of coherence called inherent necessity. Being cultural techniques, which are essential to learn for the social fitness and for being secured, they have got the biggest possible distance to things that could throw us into a dither, which could revoke aesthetical glee or irritating contemplation.

Should we begin to comprehend all the facts and relationships regarding the media, which are precious to us, in a new and different way? The amount of artefacts and technical connections as well as the simple access to telematic realities do not matter anymore. Questions of special quality, which we want to be at the interfaces of biological and technological systems and which we want to improve and develop, come to the fore. For the enforcement and general availability global decision making apparatus care already with a drastic effectivity.

Globalization is a concept, which is closely related to economical, cultural and politic power. The word originates from a vocabulary, which has nothing to do with the particular, the singular and the arts. We do require other concepts and other orientations to enforce the desire of a worldwide exchange of our work, if we do not

want to fall into the trap of such premises. Poets and philosophers such as Edouard Glissant (1928-2011) from Martinique are rather able providing them than political and ideological strategists of the absolute accumulation. Glissant works with the term *mondialité* (mondialisation), which describes the globalization as a unification. Derrida also appreciated the term. *Mondialité* designates a quality of global relationships that are not determined by unifying rationality, but by a concrete *poetry of relations*. In this sense art and theory, produced on the basis of advanced ideas and the media, could be a mondial theory and practice, which is also suitable for dynamic thinking in ecological equilibria.

The fact that its agents can focus on their competencies is an important prerequisite to let interfering thinking and acting become operative. In the last two decades we have tried to develop core skills, which are useful for a way of understanding developed media technologies and media arts. This has nothing to do with an orientation at a civilisation that advances in a straight line as a progress. It is the opposite. In conformity with palaeontologists, geologists and biologists such as Stephen Jay Gould (1941-2002), we assume that there were constellations in the past, which were more precious and more specifically sophisticated than the present age that we experience. It is just a matter of the criteria, which are important to us facing the evaluation of historical processes. The criteria of excellence, we learned to work with, is the multiplicity, the wealth of variants, the heterogeneous diversity. Like this we are joining the intellectual traditions of Giordano Bruno, Giovanni Battista della Porta, Friedrich Nietzsche, Georges Bataille, Michel Foucault or Michel de Certeau.

Only on the first sight, the current global capitalism is wearing an immense variety of colourful clothes. But appearances are deceitful. Under the surface of diversity paradigms such as unification, clustering, modularization and standardization are establishing very strongly. This process can be observed in the artistic, scientific and media practice as well as in the colligated theories and methods. Therefore, we began to establish a worldwide research network under the neologism, *Variantology* in 2004. From the perspective of different thinking traditions the activists of this network occupy themselves with the deep time relations of the arts, sciences and technologies. The thinking in deep time dimensions connects a possible past with a possible future. As well as we do not understand history as an accumulation of given facts but as a reality created by historians; we believe in a future, which arises automatically as a result of the perpetuation of the present events.

For us the semantic field of the term *Variantology* has a positive connotation. Be different, vary, change, alternate are alternatives for the translation of the latin verb *variare*. These terms can only be used in a negative way if a speaking subject abuses them as a method of exclusion. This is an axiomatic requirement of ecological thinking: to vary something existing is an alternative to destruction, which is not just an issue in economy but also in various artistic avant-garde of the 20th century. And of course it includes a media-concept. The Variété experimented with the combination of various stage concepts into a fluorescing and colourful entirety (long before the cinema), which could only enfold its power at the time of the performance.

Our most important concerns for the present age are the reactivation and reinvention of an elaborated culture of experiments. Tediously individuals have learned in the past that they are full of lacks, not effective at all nor quick but rather phlegmatic and forgetful. The modern age helped them to develop texts, calculations, pictures, sounds and machines, which are able to compensate or even overpower their shortcomings. Techno-protheses and implants were built and constructed and their handling becomes more and more organic. The impossible has been made more possible. In respect thereof the technological development was successful. Machines learned to calculate and to combine, to organize, to write, to make music, to draw, to play, to associate and they often do it much quicker than human beings are able to. The intelligent machines delight us with a degree of perfection and endurance that we cannot reach. We answered this concession by beginning to believe in machines. Many people even developed an affection to the world of the synthetic constructs, trusted the particular artefacts as well as systemic interconnected complex units. They love their cars, their stereos, their *Blackberries*, *iPhones* and communication networks, their airplanes, their nuclear power plants. In particular we owe this state to the cybernetics that arose of the fear of entropy, the fear of uncontrollable inaccuracy, which machines cannot have (according to Otto E. Rössler). This situation leaves us at least two opposing alternatives of thinking and acting. We can either procure that functional circles will be closed in an even more accurate way in the future or we can try to confront the possible with its own impossible. The experimental field of research of Variantology may open a limitless (in the literal sense of the word) scope.

With our works to the deep time relations between arts, sciences and technologies in different regions and cultures of the world, we do not want to reinvent the idea of media nor the concept of the arts. It is about an aperture of the correlation of artistic, scientific and

technical processes. Experts of modern technical communication shall publish their works more historical than up to now and subjects, which were not or only partially part of the relevant discourse shall be able to open themselves to questions about communication, media and aesthetics.

The vertical re-exploration of history and the involving of other than the familiar academic territories are linked to a remarkable geographical reorientation. With the invention of *the modern age*, the European culture of the early modern era (the culture of the reconnaissance even stronger) declared itself as the hub of the world. The opinions and reviews about arts, sciences and techniques were made between Paris, London, Stockholm, Berlin, St. Petersburg or Moscow. These were the places where people decided whether something was retrogressive, primitive or innovative, complex or sophisticated.

A core thesis of our research is: The philosophical and practical elements, which are the foundations of the modern technical communicational world originate in the far east, especially in the ancient high culture of China, in India as well as in North Africa, Anatolia, Greece, the Arabic countries and their outposts in southern and south-western Europe. Within the contemporary Europe orientations to the East became important. This topic stands in the focus of the second volume of our Variantology-series (2006). From the perspective of a multidimensional term of the modern age, as it was discussed during a congress in Senegal's capital Dakar, the deep time developments in the southern regions of America and in the sub-Sahara regions have to be involved enhanced. „Variantologia Latina“ is a widely elaborated experiment. Inspired by the idea of a variantological access to various cultural and media developments the Columbian Andrès Burbano initiated (in summer 2010) a loose network of younger researchers and artistic activists that know and study but do not accept the heritage of the Jesuits in respect of baroque technique and communication (especially the work of Athansius Kircher) as the essential origin of the own courses of action.

By contrast their basis is the assumption that the various countries and regions in South America developed their own knowledge- and techno-cultures long before and simultaneously to the canonization. In addition, they assume that these cultures developed their own forms of linguistic and textual expressions, music, instruments and artifacts, technical pictures and a technically based distance communication. An archeology of cultural variety and of diversity of the media in South America could show the deep time development in a whole new context. Gabriel Vanegas from Bogota will be one of the first young researchers who will

write a media-scientific dissertation about forms of technically mediated communication in America before the arrival of the Europeans. A preliminary climax of these researches will be a “Variantologia Brasiliana”, which will take place in 2014 in Sao Paulo. The communication techniques of the indigenous population of the Amazonas region will be in the center of discussions. It will be a cooperation with the Brazilian communication and media scientist Norval Baitello (jr.) from the Pontificia Universidade Católica de São Paulo (PUC-SP).

II.

If Eric Kluitenberg describes (in his concept of Techno-Ecologies) a world characterized complexly by technology, which the homo sapiens affects as its own with a certain self-evidence, he demands at the same time a ecological understanding for technology. He does not at all construct a techno-centristic conception of the world. With this alleged oxymoron a postulation for a *symbiotic relationship* between technology, subject and its environment is being articulated instead. This is an ethnical-political postulation, which has its roots in the conceptualizing philosophical practice of poststructuralist thinking. Since the concept of Techno-Ecologies refers to Félix Guattari’s (1930-1992) model of “Three Ecologies”. Guattari extends the term of ecology to a triad made of social relationships, human subjectivity and environment – “social ecology, mental ecology, and environmental ecology” (Guattari, 2008: 24) – whose components are in a complementary relation to each other. Guattari says that ecological and social crises as a result of frantic capitalism may be countered if the term of ecology is expanded and seen as the triad, which can only be changed in an interrelating manner of its elements. Guattari formulates this interfering “Ecosophy” programmatically:

Rather than remaining subject, in periphery, to the seductive efficiency of economy competition, we must reappropriate Universes of value, so that processes of singularisation can rediscover their consistency. We need new social and aesthetic practices, new practices of the Self in relation to the other, to the foreign, the strange – a whole programme that seems far removed from current concerns. And yet, ultimately, we will only escape from the major crises of our era through the articulation of

1. *A nascent subjectivity*
2. *A constantly mutating socius*
3. *An environment in the process of being reinvented* (Guattari, 2008, p. 45)

Guattari's triadic conception of the ecology-term is relevant for an interfering and conceptualising philosophical and artistic practice. Not less relevant is the methodical

frame he is providing: The “schizo-analysis” that he developed during earlier works in collaboration with Gilles Deleuze (1925-1995) and which has been radically applied by both of them as a dynamic, not teleological defined becoming (the most influentially in *A Thousand Plateaus*) got adapted by Guattari for cultural and social-scientific interrogations in *The Three Ecologies* – significantly more practical than in his works with Deleuze. The *Diagram* stands in the centre of Deleuze's and Guattari's method, which is a significant relevance when it comes to their approach of unmasking socio-cultural conventionalized structures as constructed principles of classification and open a potential space of reconfiguration and manipulation. They are developing a form of diagrammatics, which radically enhance related positions that are in the tradition of the semiotician Charles Sanders Peirce (1839-1914). The term of the diagram respectively the diagrammatics and especially the application by Deleuze and Guattari is precious for Variantology and also seems to become relevant for the research in the context of Techno-Ecologies as both positions are interventions, which do not want to describe the future as a closed but as an open potential space in an experimental manner. Within the scope of the variantological research we are already working on theoretical and practical diagrammatological² approaches, which can meet such requirements. Hereafter we will discuss diagrammatics in the context of the publication for Techno-Ecologies. With this we want to discuss the methods and forms of articulation, which may show configurations of relationships and help to make their modulation imaginable. First of all diagrammatics can be considered as a doctrine of specific text-images, which are denoted as diagrams due to their particular epistemic value. According to Peirce diagrams form a subsection of iconic signs that have special attributes. Different from a picture-icon they do not have to resemble the appearance of their referee. Instead they do have a common *structure* (the relation of its parts to each other).³

This categorization of the diagram as an icon shows that diagrammatics belongs to the

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Some authors distinguish “diagrammatics” as a doctrine of the diagram and related manifestations from “diagrammatology” as the doctrine of the epistemic and cognitive meaning of diagrams. As both epistemological interests refer to each other and as there are no clear boundaries between the two interests, we chose to affiliate ourselves to several authors who use the term “diagrammatics” as a general term for an extended concept of the diagram and for a thinking and acting by means of diagrammatical phenomenon. With this decision we also want to avoid discussions that only scratch terminological surfaces as it happened e.g. during discussions about the terms “Semiotics” or “Semiology” as a valid name for the science of signs (see Eco, 1972, p. 17).

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This fragmentation can also be found in publications of Charles S. Peirce who categorizes the classes of the icon into the subdivisions “Picture”, “Metaphor” and “Diagram” (see Peirce 1998).

disciplinary field of the semiotics. Peirce constructed a theory of diagrammatics, which remained a special topic for Peirce-experts although it formed the core of his semiotics (see Bauer and Ernst, 2010, p. 14). An important dimension of diagrammatics is the ability of diagrams to visualize what cannot be seen of their referring objects (namely their inner structure) as a topological representation. The art historian Andreas Gormans emphasizes this function of diagrams as the “imagination of the invisible” (Gormans, 2000, p. 53). With diagrams, characteristics of the object are being illustrated, which are revoked to the actual sensual awareness. These attributes are being formulated over conclusions as *Hypotheses*. Gormans demonstrates this visual formation of hypotheses respectively models on the basis of Johannes Kepler’s (1571-1630) diagram of the orbit of planet Mars from 1609 (see ill. 1): Although it still is set up in geometric coherent relations (analogue to the medieval *ordo*-paradigm of divine proportion⁴) Kepler adjusted his previous (and also timely appropriate) apprehension that all movements in outer space would happen in circles into an image with an elliptical orbit of Mars, which is visualized through a dashed line in the illustration.⁵ Through this functional diagram Kepler visually constructs his famous hypothesis: celestial bodies are moving in elliptical orbits. The graphical depiction with its direct visualization of geometric symmetry is more coherent than the accompanying text.

Fig. 1: The orbit of Mars in an illustration by Johannes Kepler (*Astronomia nova*, Prague 1609).

A heuristical function of diagrams is to design hypotheses about their object, which can be verified and modified systematically by manipulating the diagram.⁶ From a constructivist perspective it can be determined that a diagram is required to create a discursive object out of a referring object during the process of designation. In this context diagrams appear as extraordinary “epistemic things”. According to the science historian and biologist Hans-Jörg Rheinberger epistemic things are objects of research interests, which can be used to deduce

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see Schmidt-Biggemann, 1983 and Siegel, 2009.

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see Gormans, 2000, p. 62f.

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See Bauer and Ernst, 2010, p. 24 and 44.

new knowledge (e.g. through experimental researches). They are “not [only] objects in the narrow sense of the word, they can also be structures, reactions or functions.” (Rheinberger, 2006, p. 24)

Thus diagrammatics do not conclude in a doctrine of diagrams. The fact that the illustrated configurations (by use of diagrams) are always hypotheses is much more relevant for the semiotic reception as well as for our reflections. And these *configurations* always implicate the possibility of their *reconfiguration* – the observer or more precisely the *user* of the diagram can connote further relations, which go beyond the intention of the illustration. This operative dimension of diagrams, which can be deduced on a sheet of paper, through elaborated computer programs or simply as mental operations, wants to produce new knowledge through *conclusions*. This refers to the epistemological core of diagrammatics, which explains the increased interest on disciplines like semiotics, media and cultural studies, image science and applied disciplines such as cognitive science or information science.⁷ But this enhanced term of diagrammatics is not only the result of its increased reception during the last few years. As it often happened in history of science this fertile conceptual variation cannot be found in the present tense as a chronological localization of the quasi-maximal progress but in the origins of diagrammatics. Peirce, who established diagrammatics as a sub area of semiotics, enhances the term in the late stage of his works to an essential principle of human thinking:

By diagrammatic reasoning, I mean reasoning which constructs a diagram according to a precept expressed in general terms, performs experiments upon this diagram, notes their results, assures itself that similar experiments performed upon any diagram constructed according to the same precept would have the same results, and expresses this in general terms.⁸

For Peirce *diagrammatic thinking* allows an extraordinary form of reasoning, which he

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Only a generic selection of the amount of publications that have been published to this context can be mentioned. For semiotics, to which theses regarding diagrammatics can be found in other disciplines, the most notable publication might be *Diagrammatology* by Frederik Stjernfelt, which connects Peirce's diagrammatics with Husserl's phenomenology (see Stjernfelt, 2007). For the cultural and media studies Alexander Gerner's publications shall be mentioned (among others: Pombo und Gerner, 2010). For the cognitive and the information science also see Gerner and Pombo (2010) as well as Blackwell (2001) and Anderson, Meyer and Olivier (2002). Introductions and an overview of the thematic field of diagrammatics provides the early anthology *Diagrammatik und Philosophie* (Gehring, et al., 1992) as well as the excellent compilation about the state of research by Matthias Bauer and Christoph Ernst (2010).

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Peirce, *The New Elements of Mathematics*, vol. 4 (Den Haag: Mouton, 1976), p. 47f.

calls *diagrammatic reasoning*. As an extension of traditional concepts of reasoning (induction and deduction) diagrammatic reasoning does not only lead to the unfolding of what already exists but also to new knowledge – he calls this creative form of reasoning “abduction”. He especially identifies abduction in the process of scientific generation of hypotheses.⁹

Peirce says that reasoning forms a mental diagram whose elements can be modified. Different constellations of the particular object respectively issue can be simulated and conclusions can be drawn.

Adapted from Peirce logical thinking is always diagrammatic. Thereafter the diagrammatics can be labelled as “grammar of thought experiments” (Bauer and Ernst, 2010, p. 49) and concrete diagrams (by implication) can be seen as *means of thinking* (*Denkmittel*) because they are media of a descriptive and deductive thinking: considering and mentally or physically manipulating diagrams is not just complementary with processes of deductive thinking, it also supports these processes.¹⁰ An extraordinary manifestation of these operative dimension of diagrams can be found in an exemplar of the collected works of Rudolph Agricola (1443 or 1444-1485) published in the 16th century. Part of the book is the “*tabula divisiones locorum*”, one of many functional tree diagrams that many scholars of this time were considering as an evidence for a stringent deductive reasoning (see fig. 2). This type of diagrams illustrates the Peircean concept of diagrammatic reasoning in a very demonstrative manner, as it reveals the explicit process of a conclusion. But this special exemplar offers another level of thinking with and through diagrams: an unknown reader manually added his own thoughts to the *tabula*. Some branches on the right side were emphasized, the stem became supplemented (on the left side). Despite some branches were emphasized the diagram kept its fundamental configuration. Instead there has been added an overriding system on the left side but the deductive logics in the tradition of neoplatonic scholasticism has been

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Concerning this see revealing article about induction, deduction and abduction adapted from Peirce in the *Stanford Encyclopaedia of Philosophy* [online] Available at: <<http://plato.stanford.edu/entries/peirce/#dia>> [hit 23 June 2012].

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About the epistemic status of means of thinking and their delimitations and overlaps with means of communication see Posner (1995). Angela Lammert and Carolin Meister consider diagrams in respect of their topological constitution as „thinking space“ (see. Lammert, et al., 2007, p. 6 et seqq.).

retained.¹¹ Nevertheless, the example shows how the thinking process of the recipient became animated and it lead him to further conclusions, now in the role of the producer.¹²

Fig. 2: The „Tabula divisiones locorum“ from a collection of the complete works of Rudolphus Agricola, mid of 16th century, exemplar from the Herzog August Bibliothek Wolfenbüttel.

This operative function of the diagram as means of thinking, emphasized as test-acting (Probekhandeln) by Roland Posner (operations with the diagrammatic sign in place of the described object)¹³, supports the *imagination* of the person operating with the diagram and stimulates an imaginary-experimental relation to the world. The term of imagination origins in Kant’s epistemology, who formulates an epistemic strategy which is able to bring the diversity in a relation.¹⁴ The variantologic research with its concept of a special historical imagination ties in with Kant’s term and tries to develop it further through theories of the cultural philosopher from Prague, Vilém Flusser. Otto E. Rössler describes the modulation of historical relations through the genealogical studies to its very essence: “Variantology is a humanistic discipline that deals with the history and future of science in general and an imaginary change of the past in particular.” (Rössler, 2011, p. 417)

Like this our research project may become a time machine. In the coming few years of variantological research this concept shall become more keen and it shall be developed further (theoretically and methodically). In addition it shall be projected on a particular

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For analyses of the *Tabula* see Siegel (2009, p. 89).

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Steffen Bogen and Felix Thürlemann subdivide the functions of a diagram into a producer-side and a recipient-side: the producer compresses information in a diagrammatical manner, the recipient unfolds it in a discursive way (see *ibid.* 2003, p. 8). Nevertheless we would like to terminate this binary allocation, as diagrams also appear as means of thinking during work processes of scientific and artistic researches. They often are handwritten hasty drafts on notepads or in notebooks, discarded on the next page, changed and newly drawn in a modulated way. In this case the producer and the recipient of the diagram is the same person. Roland Posner’s status of diagrams as means of thinking becomes very clear examining these “images of thinking” (the French publication *Images de pensée* [images of thinking], contains an extraordinary collection of mostly diagrammatical drafts out of scientists’ and artists’ notebooks such as Walter Benjamin, Sol Lewitt, Charles Darwin or Iannis Xenakis (see Caraës and Marchand-Zanartu, 2001).

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See Bauer and Ernst, 2010, p. 14. See also Posner 2009, p. 214.

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See Kant, 1963, p. 88 et seqq.

geo-cultural (southern hemisphere) relation.¹⁵ In view of the fact of these theoretical and methodical further developments of the concept of imagination, the integration of diagrammatics into the variantological research seems to be productive in particular. Diagrammatics links imagination with designing actions as internal-mental and external-medial movements emphasized by Bauer and Ernst as “*circuit of descriptive thinking and trial-acting, of designing actions and cognitive processes, of investigation acts and communicating*” (Bauer and Ernst, 2010, p. 15). In this circuit occurs a synthesis of imagination and creation, which is worth it for Stjernfelt to declare a *Synthetic A Priori*¹⁶ for the diagrammatology. Under these circumstances we are currently not only working on a theoretical integration of diagrammatics into the variantological thinking but (in cooperation with the artist-researcher and designer Clemens Jahn) also on concrete diagrammatical illustration strategies of deep time relations between arts, sciences and technologies. Aim of these illustrations of a topological space of history¹⁷ is to provide diagrammatic configuration spaces, which make modulations of deep time relations imaginable and which illustrate deep time circumstances. In the illustrations 3 to 5 a preliminary result of this works can be found. Fig. 3 illustrates a spatio-temporal mode that wants to resolve two of such problems: the open time-concept, illustrated as y-axis is infinitely prolongable in the direction of the past or the future (potentially as a vector). In the centre stands the “Now”. By contrast to conventional timeline-illustrations this diagram shows no temporal *origin*. Equally the timeline does not end in a present that seems to prescribe the climax of evolution. The spatial dimension avoids Eurocentric maps (as well as maps, which are orientated North) by approaching a concept of Richard Buckminster Fuller (1895-1983): on Fuller’s *Dymaxion-Map* the North Pole forms the centre. Its alignment is not northbound but it can be rotated

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For a trial of thinking of the Kantian imagination through Flusser see Zielinski 2010. Focusing on deep time phenomena in the southern hemisphere of our planet, especially Latin America and Brazil (rudimentarily also Africa), insights shall take effect in the concept of an *Institutes for Southern Modernities (ISMs)* (see Zielinski, 2009, 2011).

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See Stjernfelt, 2007, p. 175 et seqq.

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About the history diagram as a configurable topological space of drawn history see Schmidt-Burkhard (2007, p. 33f.)

randomly. Fig. 4 shows various illustration modes of localizations on the time axis; Fig. 5 displays locations of archaeological artefacts of the variantological deep time research (symbolically illustrated as dots) between the priorities of *Arts* (A), *Science* (S) and *Technologies* (T) and sets them into a temporal relationship. In further stages of the working process an additional telematic implementation of interactive diagrammatical illustrations is being planned, to simplify a worldwide access to the working processes of the variantology project for other researchers.

Fig. 3-5: Illustration mode of the variantological deep time research field as experimenting with open space-time concepts. The drafts have been developed by Clemens Jahn and illustrate a preliminary result of an ongoing working process.

Diagrammatics is no longer only a theory of illustration by means of diagrams or a scientific method of logical reasoning but it is transforming into a designing philosophical practice, a practice of imaginary modulating of historical socio-cultural processes. With this diagrammatics closes up to the intervening philosophy of Deleuze and Guattari, where it comes to fruition in two respects. In a post-structuralist point of view, the term of the diagram stands on one side for socially and culturally conventionalized models of imagination or socio-economical power-configurations – dispositifs (Foucault) –, their possibility of modulation is already implied in the diagram-term.¹⁸ On the other side Deleuze and Guattari use the term as a figure of thought for a method of philosophizing that aims at the generation of new concepts. As a consequence it becomes a creative and designing activity.¹⁹

Particularly Deleuze develops the term of the diagram for its use based on Foucault: Foucault describes (in his earlier publication *Surveiller et punir [Discipline and Punish]*)

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Instead of diagrams Deleuze and Guattari often use the term “abstract machine” with congruent connotation – the term “concrete machine” finds a use for manifestations of these power structures e.g. the prison in the context of Foucault’s studies to the disciplinary-dispositif.

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For Deleuze’s use of the diagram-term describing dispositif structures see in particular his discourse on Foucault (ibid. 2006) as well as his discussion of the Foucaultian Dispositif-term (ibid. 1991); for the use as a reflection of the philosophical method see particularly the methodical introduction “Rhizom” on Deleuze’s and Guattari’s most important work *A Thousand Plateaus* (ibid. 1987). Besides the use of the diagram as a metaphor for theoretical models and authorial practice several hand-drawn diagrams can be found (especially in Deleuze’s publications), which Deleuze used to grapple with essential terms (see his publications *Francis Bacon – Logique de la sensation [Francis Bacon: The Logic of Sensation]*, *Foucault, Le Pli – Leibniz et le baroque [The Fold: Leibniz and the Baroque]* as well as (in collaboration with Guattari) *Qu’est-ce que la philosophie? [What is Philosophy?]* and *Mille Plateaux – Capitalisme et Schizophrénie 2 [A Thousand Plateaus]*). These diagrams appear to be extraordinary “means of thinking” in the sense of diagrammatics as they are “sketchy maps of particular regions foldings and movements of thinking” (Driesen 2009, p. 294)

formations of power and their material and discursive characteristics.²⁰ In place of the diagram Foucault later uses the term of the *dispositif*. Deleuze borrows the diagram-term from Foucault and emphasizes its structural implication. He calls the “diagram or abstract machine [...] the map of relations between forces, a map of destiny, or intensity, which [...] acts as a non-unifying immanent cause which is coextensive with the whole social field”. (Deleuze, 2006, p. 44) However he emphasizes – ever since his publication in collaboration with Guattari – the constructive potential of diagrams, which allows an emergence of subjectivization-lines, significantly stronger than Foucault: “the diagram and abstract machine have lines of flight that are primary, which are not phenomena of resistance or counterattack in an assemblage, but cutting edges of creation and dterritorialization.” (Deleuze and Guattari, 1987, p. 531) The method that is described by the metaphor of the diagram is closely linked with the creative moments of subjectivization based on Foucault but also seems to have its origins in Deleuze’s and Guattari’s reception of the Peircean diagrammatics. In *A Thousand Plateaus* they refer explicitly to the influence of the semiotician on their diagram-term. Nevertheless they only mention Peirce’s classification, which considers the diagram as a subgroup of the icon.²¹ The crucial theory of *diagrammatic thinking* is not being discussed.²² But especially the creative movements in Deleuze’s and Guattari’s philosophy that come close to the diagrammatical conclusions, form new knowledge by the use of abduction – even, if the thinking of Deleuze and Guattari does not follow defined logical operations, it is nascent in a rhizomatic and dynamic manner.

Such a diagrammatic thinking can help us to qualify conventional concepts of history and historical truths as results of epistemological conventions, to simulate other configurations imaginarily or by use of artistic means and to change them in an interfering manner. Because the diagrams – or *dispositifs*, abstract machines –, which *create* these truths, are nascent themselves and subjected to manifold modifications:

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See Foucault, 1976, p. 264.

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See Deleuze und Guattari, 2010, p. 196.

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Bauer and Ernst point this out as well (see Bauer and Ernst, 2010, p. 317). On an interpretation of Deleuze by use of Peirce’s theory of *diagrammatic thinking* also see Gerner, 2010.

This is because the diagram is highly unstable or liquid, continually churning up matter and functions in a way likely to create change. Lastly, every diagram is [...] constantly evolving. It never functions in order to represent a persisting world but produces a new kind of reality, a new model of truth, [...] it makes history by unmaking preceding realities and significations, constituting hundreds of points of emergence or creativity, unexpected conjunctions or improbable continuums. It doubles history with a sense of continual evolution. (Deleuze, 2006, p. 30)

Deleuze's and Guattari's famous imperative "make maps!" thereafter is also an invitation to comprehend and design these fluent concepts of truth and history as a space of possibilities: "What distinguishes the map from the tracing is that it is entirely oriented toward an experimentation in contact with the real." (Deleuze and Guattari, 1987, p. 12) The term of experimenting herein describes, as well as in variantological researches, an intervening practice: We can try to confront what is possible and what becomes possible with its own impossibilities. This is sort of a project and a way of thinking what we call '*Cultura experimentalis*'.²³

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