

Drawing a Hypothesis?

Contents

„Drawing a hypothesis“¹ is the principal title of a collection of texts and images concerning form, function, semantics, structure and pragmatics of diagrams and schematic drawings², referred to in the book as „figures of thought“, in the context of art theory, cultural studies and science. Form, because limits and possibilities of systems of drawings are analysed, especially of mixed systems, orthogonal projections, oblique projections and naive perspectives. Function, because logical aspects of schematic drawings within inferential processes are investigated. Structure or syntactics, because the choice of particular images from scientific papers, comparable to the study of myths, shows basic patterns of their applicability. Semantics, because contexts of meaning are changed and tested by recontextualisation. Pragmatics, because the issue is the study of forms of communication and processes of attribution in the use of schematic drawings.

In his volume, Nikolaus Gansterer, initiator and editor, puts the term „figures of thought“ in fiction, art and science up for discussion. The book comprises a selection of 160 schematic drawings as „figures of thought“, 27 dialogues, 83 concepts of the term „figures of thought“, 3 plates and a poster concerning the hierarchy of „figures of thought“. The volume can be regarded as a contribution to the study of the epistemological role of diagrams and their function within processes of the generation of theories.

The 160 schematic drawings by Nikolaus Gansterer, which are the basis of the dialogues, are presented in a plate at the beginning of the book. The original drawings based on scientific literature are for the most part small free-hand drawings with very sophisticated motives. The spectrum of the drawings, which resemble conceptual-

¹ cf. Gansterer, Nikolaus: Drawing a Hypothesis. Figures of Thought. Wien 2011

² The reason why I use the term „schematic drawing“ is that „figure of thought“ evokes presumptions and connotations which the constructed word cannot live up to, a neutral term helps to remain objective. I cannot call an ordinary vase a „grail“, this would be a supposition. What could perhaps be a synonym: „sign for sentence“ vs. „figure of thought“? We do not use „calculating-number“ or „speaking-sign“ (language-sign?). „Figure of thought“ sounds better – it is an epiphenomenon like „mental image“ or a term for stimuli processed by the brain. The impression is given that a person can deliberately decide which „figure of thought“ can be used, e.g. when playing chess or solving a problem. Are „figures of thought“ heuristics? The term is useful for the time being for a sort of visual rhetoric. The term seems to open an issue in a comparable way to the term „draft“ which can be encircled by „forma“, „projectio“ and „inventio“.

realistic or quasi-realistic forms, to some extent surrealistic, but on the whole descriptive, consists of tree diagrams, geometric networks and organic fragments. The plate brings to mind compilations of basic elements or „graphemes“ in research by Rhoda Kellogg or Fernand Olivier. It includes well known or lesser known scientific illustrations. The „rabbit-duck“ head by Joseph Jastrow, the „dymaxion“ map by Richard Buckminster-Fuller, the „I think“ sketch by Charles Darwin or the „ocean-chart“ by Henry Holiday can be identified.

The 27 dialogues, referred to as „hypotheses“, are the result of thoughts on the value of selected schematic drawings by artists and scientists from anthropology, biology, electrical engineering, geography, informatics, fine arts, philology, philosophy, physics, psycho-analysis and psychology. As a starting point for theoretical reflection, Nikolaus Gansterer provided the authors with selected schematic drawings without captions. The result is a collection of 27 elaborated points of view, each in itself a self-contained structure, which the editor describes as „micrologies“. The opinions deal with conditions of and possibilities for linking iconic and discursive forms of knowledge. In an update of this major dichotomy, exemplification-denotation or representation-proposition are central pillars in artistic research of the role of images in connection with cognitive processes. Different views on the phenomenon „diagram“ emerge from the dialogues, as a system of relations of power, a blending of image and text, a logical deduction, a starting point for radical interpretation, a causal relation, a functional circulation, an exemplification, a result of cognitive processes, a poetical image, a precursor for writing, a „figure of thought“, a green line, a ritual item, a generator of unwanted knowledge, a tool for economic forecasting, a magic salt of scientific tricksters, an illustration of social relations, a sensual element of logical understanding, a fictitious world, an unthought-of familiarity, a postulate, a picture puzzle, a means of scientific utopia, a tool for persuasion, an utterly useless drawing. An array of answers is offered to questions concerning the hypothetical quality of the phenomenon „diagram“, some authors, however, do not suggest a concept, e.g. the „subjectile“ by Antonin Artaud and Jacques Derrida or „immutable mobile“ by Bruno Latour, but narrow down the question. They offer verbal theses, e.g. that drawing is at the same time evoking an „if“ and postponing a „then“, or that, as opposed to logical-purposeful hypotheses in natural science, intuitive-experimental theses are end points rather than starting points of theories. The 83 „figures of thought“ by Gerhard

Dirmoser are summed up as entries in an encyclopedia, for the most part without illustrations. The selection is the result of comprehensive research on the use of diagrams in science and art. It is the first attempt in a contribution to a book to introduce the long standing research results of system analyst Gerhard Dirmoser on diagrammatics. The term „figures of thought“ ensued from correspondence in 2004 with Astrit Schmidt-Burkhardt in connection with a paper on „figures of order“, and serves as a basis for the investigation and analysis of scientific texts in visual culture, graphemics and diagrammatics. The book is not a cognitive scientific or neuroesthetic analysis of processes of thinking using pictures, but a clarification regarding the phenomenon diagram in the field of the history of science. Important clues to capture „diagrammatic thinking“ are supplied by rhetoric, figuration and graphics. The term „figures of thought“ comes across as an auxiliary construction or background in establishing various concepts, models and processes to shed light on epistemological functions of diagrams or their role as tools of thought. The concepts are viewed and defined in the light of or as sub-categories of „figures of thought“. The entries convey substantial features of the concepts and their leading authors. The purpose of the collection is to supply details of the „physiognomy“ or the „sphere“ of the term diagram. In the wake of the „figure of thought“ of the „visual metaphor“ by Ludwig Wittgenstein, suggesting that the words in our mind are surrounded by a courtyard of meanings as a mental fringe, the entries help to determine these areas and to show borders to other terms. The „visual metaphor“ is mentioned in the entry „rhetoric gestures“. The 83 entries refer to numerous concepts, e.g. folding, geometric evidence, shape perception, family resemblance, formal sequence, logical form, projection relationship, rhetoric gesture, rhizome, image-writing. The 3 colour plates by Nikolaus Gansterer contain associative compilations of illustrations titled „atlas of correlations“, referring to the „mnemoysne atlas“ by Aby Warburg, 1924-1929, and photographs of models and drawings by the editor. The poster concerning the hierarchy of „figures of thought“ by Nikolaus Gansterer was developed in cooperation with Gerhard Dirmoser and assembles numerous schematic drawings. The reader can retrace the importance of „figures of thought“ based on topographical relationships concerning position, size or weight. Entangled schematic drawings can be distinguished from each other according to their features or sign systems. A drawing as a whole is a schematic system consisting for the main part of lines, areas, fields and shades. Drawings encompass

among others tree diagrams, graphs, nodes, matrices, amounts, nets, points, vectors.

Methodology

Methodologically, the approach of the initiator and editor can be distinguished from that of the various authors. In addition to a selection of images and a preliminary survey of 160 scientific illustrations, Nikolaus Gansterer uses a dialogic interviewing method. The authors respond differently to the schematic drawings they have received, e.g. by learning, by describing, by deriving questions, by trying out theoretical correlations. Three general ways of approach can be identified:

Authors analysing, describing or recognising their own terminology in the subject-matter received, the items being „mute“. The possibilities of propositions and the systems of symbols of the original images are overwritten or extended, often captions are added (e.g. subject-matter interpreted as geographies).

Authors synthesising and making further use of the subject-matter received to develop stories or theses. The systems of symbols of the original images are recontextualised, often new, even fictitious propositions emerge (e.g. subject-matter as part of a comic-strip).

Authors evaluating the subject-matter received, i.e. adapting possible meanings of schematic drawings to their background knowledge. The systems of symbols of the original images are corroborated, often new theses in their own terminology are created (e.g. integrating subject-matter into approaches to research).

Susanne Leeb, Clemens Krümmel, Jörg Piringer, Anthony Auerbach, Kirsten Mathews, Emma Cocker, Karin Harrasser, Monika Bakke, Andreas Schinner, Ferdinand Schmatz, Helmut Leder, Gerhard Dirmoser, Phillippe Rekacewicz, Axel Stockburger, Marc Boeckler, Christian Reder, Walter Seidl, Katja Mayer, Jane Tormey, Moira Roth, Felix de Mendelssohn. Kerstin Bartels, Katharina Boesch, Alexandra Feichtner, Christine Haupt-Stummer, Andreas Kristof, Hanneke Grootenboer, Peter Brandlmayr, Maurizio Nardo, Christina Stadlbauer and Ralo Mayer offer a variety of ways of working with the schematic drawings received, e.g. interpretative-historical analysis, seeing-as, free association, logical reasoning, radical interpretation, semantic analysis, semi-experimental research, phenomenological description, categorisation or comparison. Dialogical interplay of different quality between selected schematic drawings

and terminologies, background knowledge, presuppositions and hypotheses results from these methods.

Discussion

In general, a dialogical procedure can be compared with projects operating at the interface between art and science, e.g. the exhibition „Knowledge creates Questions. 24 Dialogues between Scientists and Artists“, 2006, by Cynthia Schwertsik, Christiane Spatt and Isabel Czerwenka-Wenkstetten. The methodical setting of testing the same subject-matter with different people is of a semi-experimental nature, e.g. the film „Coffee and Cigarettes“, 2003, by Jim Jarmusch, in which actors are confronted with the same script, and different episodes regarding the same topic are shown. The procedure of certain authors producing scientific fiction reminds of papers by Adi Newton, „Anterior Research Lab. The Anti Group“, Sheffield, or by Laszlo Hortobagyi, „Computer Department of Ethnomusicology. Gayan Uttejak Society“, Budapest, which are localised at the interface between science and pseudo-science attempting to provide a scientific foundation to music and to initialise new experiences for listeners.

Not all the authors take the schematic drawings seriously. Some provide independent contributions, others work intensively with the subject-matter received. The interpretations are intuitive-experimental or logical-purposeful in accordance with the standard of knowledge of the authors. Active and affirmative approaches augmenting the subject-matter with additional information prevail, others are reactive, deconstructing the subject-matter and challenging possibilities for reflection. The artistic-playful level and the scientific context increasingly become blurred. In the case of fictitious captions, which could be taken from scientific journals, the authors offer descriptions or „out-writings“. This process illustrates how slippery the attribution of meaning is, and how easy it is to disturb or change propositions regarding images. The descriptions show how elastic or „dense“, as Nelson Goodman would say, systems of the denotation of images are, and how attributions can take place regardless of truth and evidence. If the 160 schematic drawings were verbal quotations, some of the points of view would lose their value and meaning. Due to the suggestive quality of some of the points of view, the reader is taken on a trip into fictitious fields of knowledge. Attention and readability are put to the test by „micrologies“ to some extent out of touch

with reality, coercing the reader to decide whether to continue reading and to get involved or not. As a result, the „micrologies“ showcase how science and the production of knowledge can take place.



Figure 1: alienation (strangification) and logical analysis³

The dialogues convey the blending of iconic and discursive forms of knowledge. These two basic types of the appropriation of reality disclose new forms of knowledge and at the same time new problems. The hypothesis that it must be possible to draw hypotheses requires a blending of these two types, i.e. a bridge between iconic and discursive knowledge is assumed. In connection with the thesis by Dieter Mersch stating that images do not allow negation, it is possible to analyse how diagrams can ask questions or serve as a basis for further reasoning. The plausability of such chains of reasoning can shed light on the epidemiological function of diagrams. Schematic drawings or diagrams can undoubtedly be a part of processes of the generation of theory, but it is well worth considering whether an adaption to discursive processes is prolific or whether specific, iconic forms of knowledge can yield new points of connection. Starting from the comparison of pictures as scientific experiments by John Constable, diagrammatics can be regarded as a field of research, its experiments being „figures of thought“.

By the dialogues, the schematic drawings are transferred into a system of propositions they are not acquainted with, as if they were verbal quotations. This transfer of images as recontextualisation can be compared to the concept of „alienation“ used in the theory of science to describe the work of scientists. This is a poetical method based on russian formalism to change associations during reading. Following on from this method by Bertolt Brecht and Friedrich Wallner, an alienation of propositions into other contexts may lead to propositions or theories being misunderstood or experts

³ Figure taken from Greiner, Kurt: Therapie der Wissenschaft. Frankfurt.a.M. 2005. P.119.

loosing their bearings. A proposition or a system of sentences is transferred from a context of origin into a „context of alienation“. Transferring a proposition into another context is strictly speaking not really alienation, but rather just simply recontextualisation. Compared to recontextualisations, alienations focus on the context of the problem. The original propositions or theories of specific areas of study can undergo a semantic change of meaning. The retroactive effect on the original proposition is a substantial feature of alienation compared to recontextualisation. The transfer of systems of symbols of schematic drawings into the contexts of alienation of the authors is in this sense not really alienation, because the references to the original contexts of the problems do not work and variations of alienation concerning fictitious contexts take place. Besides associative potential, the merit of the 27 hypotheses lies in the subject-matter rejected, i.e. where are breaches of reasoning, where or why do authors dismiss their theses or alternative drafts. This applies to the contributions making an issue out of incorporation and retranslation, e.g. Clemens Krümmel or Ralo Mayer. In terms of the plausability of such problems of incorporation, it would be advisable for the different opinions to a larger degree to have the character of a workshop. A result of research on the hypothetical quality of schematic drawings in diagrammatics could be a conceptual history of incorporations into contexts easily to reach for the reader, and a reactive concept of the diagrams.

The complex contributions and points of view in this volume can be regarded as applied research on diagrammatics. „How do readings of diagrams work?“, „Which authors represent certain types of propositions of terms?“, „How do different scientists respond to the same schematic drawings?“, „How do terms in diagrammatics take shape?“, „Which areas of correlation exist for the term `image of thought`?“, „How can diagrams be grasped in language?“, these are the assets of the approach. Against the background of these questions, the book can be regarded as a paraphrase of discursive possibilities of the propositions of images according to Michel Foucault. Regarding the 4 features of a proposition - character set, subject, field or context, mediality - the focus of the 27 „micrologies“ is on the first, i.e. the connection of character sets and symbolic fields by a „referential“. Concretely, this means the linking of the propositions of the schematic drawings to their meanings by way of the chain: proposition, character set and utterance. One of the achievements of the book for diagrammatics is making plausible the development and construction of these

„referentials“, experimentally, artistically, methodically and playfully. The focus of the 83 „figures of thought“ presented is on the field of the proposition and the materiality of schematic drawings, i.e. which associated areas does the term refer to, and which material or medial forms can diagrams assume. In this respect, working on this collection and analysing individual concepts can be regarded as a comparison of methods. This is the contribution to the conceptual history of the term diagram.

In accordance with an archaeology of knowledge, the volume in question is not so much an analysis of the contents of images or the intentions of their producers, but more an examination of the possibilities of propositions of diagrams and their knowledge expressed in space, distance, proportion and outline by dialogues and exemplary „figures of thought“.

Gert Hasenhütl, Vienna 2012

Translated into English by Gordon Powell.

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