DE GRUYTER OPEN

studia humana
QUARTERLY JOURNAL

Studia Humana
Volume 4:2 (2015), pp. 3—12
DOI: 10.1515/sh-2015-0011

Salva Phaenomenis. Phenomenological Dimension of Subjectivity in the Frame of the Reductionist Paradigm of the Cognitive Sciences

Filip Kobiela

The University School of Physical Education in Krakow, Krakow, Poland

e-mail: filipkobiela@interia.pl

Abstract:
The paper addresses the family of questions that arose from the field of interactions between phenomenology and the cognitive sciences. On the one hand, apparently partial coextensivity of research domain of phenomenology and the cognitive sciences sets the goal of their cooperation and mutual inspiration. On the other hand, there are some obstacles on the path to achieve this goal: phenomenology and the cognitive sciences have different traditions, they speak different languages, they have adopted different methodological approaches, and last but not least, their prominent exponents exhibits different styles of thinking. In order to clarify this complicated area of tensions, the paper presents the results of philosophical reflections of such topics as: 1) philosophical presuppositions and postulates of the cognitive sciences 2) abstraction of some phenomena during idealisation and the dialectical model of science's development 3) argumentation based on prediction of future development of the cognitive sciences. This finally leads to the formulation of a phenomenology-based postulate for adequate model of mind and the discussion of humanistic dimension of cognitive sciences.

Keywords: phenomenology, the cognitive sciences, philosophical presuppositions, reductionism, naturalism, idealization, methodology, Husserl, *salva phaenomenis*

1. Is cognitive science based on philosophical presuppositions?[i]

In this paper I would primarily like to refer to the first segment of this issue's guiding question: philosophical presuppositions of the cognitive science that results in formulating a certain programme assumption (postulate) which was inspired by phenomenology. As a starting point, I would like to ask a question, which is typical for the phenomenological tradition, concerning possible philosophical presuppositions of particular sciences, referring them to the cognitive sciences. I would now like to clarify a way of understanding this question in two steps: by briefly describing the peculiarity of cognitive sciences and their possible philosophical presuppositions. Thus, I will be penetrating the field of meta-cognitive-science considerations.

The concept of mind, which is a key concept in the cognitive sciences, is regarded either as referring to the existing, physically realized minds (human minds, also minds of higher animals), or physically possible minds (Artificial Intelligence), or minds possible only in terms of nomology. Modelling of cognitive processes is usually understood as the main task of these sciences. This task can be accomplished by *constructing a theory of mind* in its cognitive dimension (constructing theory that models the human mind)—in this aspect, the cognitive sciences research are continuation of cognitive psychology. This task can also be accomplished as *constructing a mind*, but what is the case is an artificial mind, commonly referred to as artificial intelligence—in this

aspect, the cognitive sciences are derived from computer science. While the very task of the cognitive sciences can be presented in a relatively homogeneous manner: constructing the models of the cognising mind by creating empirical theories or functional prototypes, within the sub-disciplines of cognitive science which are responsible for accomplishing this task, things are significantly diversified. There is no doubt that the cognitive science's project is multi- and interdisciplinary, and therefore also open for using different research methodologies. I think, however, that the belief that the unity of the cognitive sciences is emerging from such heterogeneous sources is based on the concept of supervenience [25] or, to use Ingarden's terminology–a homogenous *figural quality* emerges from different component disciplines. Irrespectively of whether the philosophical disciplines are present or not as part of (especially the philosophy of mind) the cognitive sciences project, I consider it to be a relatively independent, specific research program. The starting question is therefore as follows: does the mind modelling oriented theoretical and/or practical activity of cognitive sciences depend on philosophical presuppositions?

In the history of science, examples were recorded of important inspirations arising from the philosophy that contributed to scientific discoveries. The most famous case of this heuristic role of philosophy in science is the context of the discovery of the special theory of relativity. But still, is the already formulated special theory of relativity, as some kind of a finished outcome of scientific cognition, based on some of philosophical presuppositions? The context of „philosophical" justification for some kind of scientific theory and the possible philosophical consequences of this theory belong to the same group of issues–in both cases it is a question of the dimension of logical consequence (of course with different sets of premises and conclusions). In the first case, philosophical theses would be premises in inferences, where theses of a given scientific theory would be conclusions; in the second case, it would be the opposite way. It seems that according to a fairly widespread opinion, asymmetry occurs here: the existence of philosophical presuppositions is denied, assuming, however, the existence of philosophical consequences. In the context of the above-mentioned special theory of relativity, it is quite commonly recognised that it radically changed certain philosophical beliefs concerning, among others, the nature of time and space (therefore it has important philosophical consequences), and although in fact some philosophical premises were important to develop it, they are not included in the set of its presuppositions. Regardless of whether these beliefs are right, which will not be considered here, it becomes explicit that one should distinguish between: 1) the philosophical context of discovery 2) the context of its philosophical justification 3) philosophical consequences of discovery. In further considerations I will be dealing only with philosophical presuppositions related to the context of discovery, which contains also programme presuppositions.

Is the task set by the cognitive sciences (the cognitive task, but it could also be an engineering task) in its methodological dimension somehow dependent on philosophical postulates? I would like to regard this problem as a question of a *normative* nature, so what I am interested in is mainly the specifically understood methodological aspect of the cognitive sciences.

2. Can we quine Husserl?[ii]

When considering the family of concepts (as understood by Wittgenstein) that defines the area of the cognitive sciences research, one may notice that some of them are also part of the field of interest of phenomenology. Since phenomenological research were initiated more than half a century before cognitive science emerged, phenomenologist is, in a sense, a host in the area, to which an interdisciplinary project of the cognitive sciences is entering. Phenomenology provides description of human subjectivity, which is the basis of knowledge about what it means to be a human subject. And yet, despite this historical dependence, the popular image depicts the role of a phenomenologist as an auxiliary one, at best, for the cognitive sciences.

One would not find a separate course in phenomenology in cognitive studies syllabus. I believe that one of the reasons for making phenomenology peripheral was the opinion of some representatives of philosophy of mind, who, by mistake, identify the phenomenological method as an untrained psychological introspection [4][iii]. Given that, phenomenology would only be a kind of folk psychology, perhaps the aspiring one, but still *folk* psychology.

Another reason could be the issue of the conceptual apparatus: compatibility of the specific language of phenomenology with the scientific discourse. The basic contemporary discourse concerning reality uses the language (sometimes the trivialised one) of natural sciences; therefore the basic concepts are *gradient*, *tensor* or *a state of matter* rather than *essence*, *accident* or *a state of affairs*. Given that, as noted by A. Klawiter, the philosophers must accept (willingly or not) the fact that *lingua franca* of the contemporary knowledge about the mind is the language of science. If so, what can be the function of the phenomenology-oriented philosopher? According to Klawiter's analysis, the function of the philosopher it is to show that: „An attempt to ignore the philosopher's proposals will result in creating mind-like or even para-mental structure model rather than the model of the mind" [10][iv]. I believe this remark grasps one of the central relation between phenomenology and cognitive sciences. In the following discussion, I will formulate a postulate which allows to determine the methodological function of phenomenology in cognitive science as well as its wider context that goes beyond methodology. Now, apart from its basic methodological dimension, phenomenology also has an important anthropological dimension. For phenomenology, the human version of the mind is a model one, and its task is description and eidetic analysis of mental phenomena: awareness, intentionality and axiological dimension of the mind. Especially the last item allows to clearly articulate the typically Husserlian questions such as: *Are the cognitive sciences humanities?* [9].

3. In search for the natural analogon of mental events: phlogiston or air resistance/friction? Towards the dialectic model of science's development

So far, the attempts to indicate the place of mind in the physical world did not bring widely accepted solution that indicates the natural process which would be identified with mental phenomena. Instead of such identification, some analogies are indicated[v]. Besides, these analogies are of heuristic rather than explanatory nature. A group of eliminativistic theories also includes an analogy that compares the mind to phlogiston—the concept used in the 17th and 18th-century science to explain phenomenon of combustion. This analogy is meant to show that the mentalistic discourse is (or will become) obsolete. I'll try to offer another analogy designed to show that mentalistic discourse is indispensable not only for the daily life, but also in the theoretical context.

A field of science, which is relatively young and rapidly growing, is in a natural way future-oriented, as evidenced by the far-reaching saturation of scientific jargon with terms such as *project* or research *program*. Despite numerous objections regarding predicting the future that futurology raises in the world of science (it, after all, raises serious methodological difficulties bringing thus the risk of abusing the epistemic authority of science), it is remarkable how many arguments in the philosophy of mind and the cognitive sciences *refer* to the future, trying to anticipate development of science, although they are also often based on analogies found in the past (history) of science. The so-called *reductivism*, position which states that due to previous success of the micro-reduction, at the moment, science should prefer neuroscientific theories in relation to theories that are not based on neuroscience, is a clear example of this argument. Therefore, the postulate to abandon the phenomenology-oriented research concerning the mind would be a consequence of the radical version of this position. The structure of such arguments is usually as follows: „future science's development will explain X, and therefore one can reduce ... etc. etc." However, the presupposition included here is *de facto* questionable, therefore the structure of this reasoning should be explicated as the following: „*if* the future development of science explains X, then... etc. etc." However, a brief reaction is possible: „if", that indicates who bears the burden of proof of the presupposition. This

prediction is based on a certain extrapolation, which means it is based on an inductive inference. Due to the risk of failure of such inference with regard to development of science, which is largely unpredictable, what we are actually dealing with is a speculative position. Thus, some forms of naturalism appealing to future development of science seem to have serious hallmarks of ideology, or even of wishful thinking.

In opposition to the hypothesis of linear structure of the development of science, which is linked with reductionism, I would like to offer the hypothesis of dialectical development of science, which is also based on an analogy taken from the history of science. This analogy allows, I believe, to show that some forms of reductionism might be seen as a certain stage of the development the natural sciences. Now, in physics, one can refer to Newton's equations without taking account of the friction force or air resistance. While we know that these phenomena occur in a real system, solving the model without taking account of them might provide insights into how behaves the real system, where these forces might be neglected. Resigning from taking account of air resistance enabled formulation of the laws of motion, but the laws alone, which were obtained through this idealisation, are not sufficient for complete description of reality. A description like this becomes possible once one take account of what has been previously omitted. As noted by Weizsäcker, philosophy asks questions, whose if not asked, were a prerequisite for the scientific method to succeed. This includes therefore the statement that science owes its success to, among other things, resigning from asking certain questions [26, p. 167]. A similar idea might also be found in Husserl who claims that positive sciences in their exclusive orientation toward the acquisition of more and more results fail to reflect on their own epistemological and metaphysical presuppositions, but 'these deficiencies are part of what enables science to progress as fast as it does' [32, pp. 44, 151].

Thus, what emerges is some kind of dialectical model of the development of science: the success of a particular research program is determined by *omitting* a certain aspect of the field of phenomena examined, which has to be taken into account, however, in the subsequent studies, if it aspires to a comprehensive explanation of particular class of phenomena. To use the names of the two great scientists as figures that are symbols of this evolution: a „Galilean" model (leaving aside the air resistance), associated with the rapid development of modern science, must be complemented by „Aristotelian" taking account of the full complexity of phenomena[vi]. I maintain that there is an analogy between air resistance and mind-typical phenomena the described by phenomenology. Both of them are reality, and they are not fictions or theoretical entities (like phlogiston). Although at a certain stage of development of individual sciences they can be skipped, eventually it is necessary to take them into account. The latter stage of research can now be linked to the basic slogan of phenomenology—*Zurück zu den Sachen selbst!—Back to the Things Themselves!* If within certain limits the following analogy is valid: testing the subject without fully taking account of the specific nature of consciousness is like studying motion without taking account of friction (or of air resistance), then the phenomenology-inspired slogan of the cognitive sciences could be as follows: B*ack* (after the research that leaves aside the phenomenological dimension of consciousness) *to the Consciousness Itself*. How, however, should this return be understood?

As stated by H. Spiegelberg—the basis for the unity of phenomenology is the persistent strive to view phenomena and to be *faithful* (emphasis added, F.K.) towards them [24, 700]. Thus, phenomenology is set to oppose the various forms of phenomena deformation that originate both from the scholastic (in the pejorative sense) verbalism and to oppose a specific alienation, which is a by-product of the methodology of empirical research. Natural sciences express being in a certain aspect, using at the same time idealisation methods, therefore they provide (at least at a given stage of development) an abstract scheme rather than the complete knowledge of reality. The postulate of phenomenologically inspired research can be thus expressed as—*salva phaenomenis*—saving the phenomena.

4. *Salva phaenomenis:* phenomenological standard for project of constructing models of subjectivity

The expression ‘saving the phenomena’ goes back to the ancient Greek astronomy and had different interpretations throughout the history of science and philosophy. The phrase is connected with the work on the methodology of Aristotle, and in particular on his astronomical studies, [19], [12], but because of its methodological importance, it has gone beyond this original historical context. Contemporary usage was strongly influenced by Pierre Duhem’s discussion [6]. In Van Fraasen’s constructive empiricism ‘a theory is empirically adequate exactly if what it says about the observable things and events in the world is true—exactly if it <<saves the phenomena>>’. [28, p. 12], [29]. ‘Saving the phenomena’ consists in isomorphism between an empirical sub-model of a theory and phenomena [13, pp. 129-130].

Although the discussion concerning ‘saving the phenomena’ takes place mainly within the instrumentalist (anti-realistic) tradition of philosophy of science [3], it is necessary to confront it with the phenomenological tradition. One of Husserl's tasks was to replace the narrow empiricist concept of experience with an enlarged one, which enables a researcher to get access to wider range of phenomena. The term *phenomenon* is often interpreted as opposed to reality, as a mere *appearance*—the way in which an object appears to us, but it is not the object as it is in itself. The study of such understood phenomena is classified as something at least partly superficial; the phenomena should be transcended in order to reveal actual reality. This understanding lies behind the distinction between so called *phenomenological* thermodynamics—the study of actual phenomena with avoidance of complete microscopic explanation, in contrast with statistical thermodynamics which based its explanation on investigations of microscopic level. Now, in phenomenology *phenomenon* is understood in a different way: as the manifestation of the thing itself, the way in which objects show themselves [32, p. 55], [8, p. 84-85]. Regarding the subject matter of the cognitive science, one might say that phenomenological approach takes mental phenomena seriously: how the mind appears is an integral part of what it really is. Thus, any serious model of the mind can not dismiss such mind-specific phenomena, as intentionality [21] or the subjective, phenomenal aspect of consciousness, to use the most prominent examples.

After this introduction, we are in the position to formulate the version of ‘saving the phenomena’ principle for the cognitive science. Owen himself used the Greek formula *tithenai ta phaenomena*, but due to the analogy with the *salva veritate*[vii] formula, it will be more handily to use its Latin version. Additionally, the Latin version is meant to emphasise that the formula differs from the slogan used in anti-realistic tradition in the philosophy of science.
Here is the formulation of the principle of *salva phaenomenis* that I suggest as referred to the cognitive sciences:

> The model M* of the mind M is an adequate model if and only if its design saves all the M-specific phenomena.

The criterion of adequacy of the model of the mind must be based, first, on the appropriate selection of phenomena that are to be modelled. An arbitrary selection or omitting certain phenomena is excluded in adequate model. Secondly, an adequate model must contain the design of equivalents of all the phenomena explained—if the model suggested is to be a reliable explanation of *explanandum*, it has to be complete (it has to *explain*, not *explain away*). Of course, from the point of view of the finished construction, it is probably of secondary importance whether some occurrences were disregarded as early as when selecting *explanans* or whether they have been omitted later, during the process of explanation. Any form of ignoring (failure to save or leaving out) a class of phenomena will make the constructed model inadequate. The phenomenologist could serve here as a kind of a supervisor, being an ‘advocate’ of these aspects of subjectivity which are

best revealed by phenomenological investigation[viii]. He refers to the obligation to protect certain classes of phenomena against being ignored when selecting the phenomena that are to be explained and modelled.

Although the principle discussed is of fundamental nature, however, in the context of the history of cognitive science research it is evident that it was not always observed. The eliminativistic theory and the behaviourist theory are the most typical examples of how it was violated. As noted by Auyang: 'Behaviorists dismiss first-person experiences in the name of <<science>>, thus manifesting dogmatism opposing to science'. In contrast to such a dogmatism, 'science uses whatever concepts necessary to save the phenomena. If to characterize some human phenomena scientists require the concept of subjectivity or first-person perspective, let it be' [2, p. 134]. One of the causes of this state of affairs is that the locus of cognitive science—infrastructural level of mental faculties—is located 'below' the consciousness. The following comments by Searle accurately represent this phenomenon, at least at a certain stage of cognitive science development: 'Neither the study of the brain as such nor the study of consciousness as such is of much interest and importance to cognitive science. (...) The cognitive mechanisms we study are indeed implemented in the brain, and some of them find a surface expression in the consciousness, but our interest is in the intermediate level where the actual cognitive processes are inaccessible to consciousness. (…) The processes which explain cognition are unconscious not only in fact, but in principle. For example, Chomsky's rules of universal grammar (1986), or Marr's rules of vision (1982), or Fodor's language of thought (1975) are not the sort of phenomena that could become conscious'. [23, pp. 197-198][ix]. However, the fact that the essence of cognitive science research tends to explain the mind by showing certain unconscious structures of the mind is not, of course, a sufficient reason to ignore certain phenomena associated with the mind. Thus, the principles *salva phaenomenis* must then be formulated and what must be presented in its light is both certain regularities of how the cognitive sciences develop, and certain peculiarities of them that result from how certain examined properties of the mind are co-determined by phenomenal data.

Let us also note that *salva phaenomenis* is a more fundamental principle than *the Occam's razor principle*. The latter, although it prefers certain types of explanation, at the starting point does not define (and therefore it does not limit) the range of phenomena that are subject to the rigor of explanation. A the same time, the *salva phaenomenis* blade is aimed, so to speak, in the opposite direction than the Occam's razor blade: against the excessive reduction (or elimination) of entities that are subject to explanation.

The set of issues in cognitive sciences, where researchers can use phenomenological inspiration, is very extensive. Let us now consider some issues that may be interpreted as relevant for the principle discussed.

A. Klawiter, as an embodiment of his abovementioned postulate, suggests a conceptualisation rooted in Heidegger's distinction between a thing and a tool. The concept of a tool, initially created by Husserl and developed by Heidegger, provides a starting point to correct the standard model of perception. Well, according to Heidegger, the features of a tool can not be derived from the features of a thing. The impulse to explain the mechanism of creating the useful („handy") visual representations of qualities of objects, which deviates from the standard (Marr's and Biederman's) models of perception, was inspired by philosophy, or more specifically, phenomenology. The 'Perceiving Mind' Model, which does not take into account the above insight provided by phenomenology may not be an adequate model.

A. Miah delivers an analysis concerning the adequacy of the game of chess as a test in the context of AI. Miah argues (based on the philosophical theory of game playing delivered by B. Suits) that chess is a bad model for testing intelligence because it does not provide the opportunity for certain phenomena, which are typical for human intelligence, to appear, including „opportunity for nonlinear decision-making and deviance form preconceived strategic pattern", [17, p. 22]. I believe that Miah is right when he argues that chess programs are not adequate models of 'the mind of a chess player', and treating them as a paradigm of artificial intelligence turned out to be missing

the target as they failed to take account of many important phenomena. Better opportunities for testing humanlike intelligence could rather be provided by other kinds of games, like sport games, due to their temporal element and essential function of the player's bodies (compare e.g. Merleau-Ponty's phenomenological description of football player experience [18, pp. 168-169] as well as investigations concerning embodiment [7, pp. 129-150].

In his Cartesian-type 'empirical dualism', U. Meixner argues that materialistic account of human persons can not save certain empirical phenomena. For example: Meixner claims, that I am to be found at the location from which I am looking at the world (at the origin of my perspective on things, my eye-point), and no material object at that location is, plausibly, me because this location does not correspond to my body or any part of it [15, pp. 419-425]. An attempt to answer the question 'where am I?' along with other examples are intended to undermine materialism not by using a priori reasoning, which is traditional in philosophy, but rather using the phenomenological (in a certain sense) analysis of some experiences.

An important attempt to link phenomenological studies with neurosciences program is neurophenomenology [7, pp. 33-38]. Achievements obtained under this program can be interpreted as a successful application of the *salva phenomenis* principle. It turns out that inspiring to some empirical research may be a heuristic function of phenomenological studies [30].

The meaning of thought experiments such as J. Searle's *Chinese room* or F. Jackson's *Mary's room* can now, in the light of the *salva phaenomenis* principle, be interpreted as indication of inadequacy of a certain type of the mind models, the inadequacy that results from disregarding certain phenomenal qualities. On the other hand, a radical position called *misterianism* [16, p. 349-366] may be understood as a thesis on the impossibility to construct an adequate model. The *salva phaenomenis* principle is neutral towards the question of whether construction of adequate model of the mind is possible, since it is an implication: if an M model does not meet the *salva phaenomenis* standard, then this is not an adequate model of the mind. It is sufficient, however, to indicate the limitations of certain existing models of the mind, as well as in indicating the direction of research of more adequate models.

5. Closing remarks

While examining the problem of the relation of the cognitive sciences and phenomenology, I assumed that cognitive sciences' homogeneity is based on supervenience on many sub-disciplines, and that their primary task is to construct models of the mind. I tried to show that phenomenology understood as a study of mind-related phenomena can be an important factor in the cognitive science project. Now, any construction of scientific models, including the models of the mind, in its higher stage of development should go back to phenomena that were omitted in the first, rapid period of their development. The same mechanism of development of science through abstraction and idealization, which contributes to the initial advancement of research, in the longer term, is responsible for simplifying the initial model. To avoid such simplification I postulate to apply the *salva phaenomenis* principle that defines the overall condition of the adequacy of models of the mind. I believe that this principle does not reflect so much the idea of *naturalisation of phenomenology* [22], [31], as, on the contrary, *phenomenologisation of naturalism,* or, more precisely, phenomenologisation of the cognitive sciences.

Therefore, I believe that phenomenology has an important role to fulfil as a partner of the cognitive sciences, indicating the primacy of phenomena, whose theoretical importance—together with the increasing perfection of the models of the mind—will probably grow. In this indirect way, due to phenomenology, an important humanistic sense—the human dimension of experience—may become an inherent part of the cognitive sciences project, which is essentially naturalistic. This would mean a kind of Husserl's triumph in how farsighted he was. The *salva phaenomenis* principle belongs to the set of 'humanistic requirements' (as described by H. Arendt; the others are simplicity, beauty and harmony) of the scientific theory. 'A theory was still supposed to be

<<satisfactory>>, namely, satisfactory to human reason in that it served to <<save the phenomena>>, to explain all observed facts' [1, p. 47]. If the cognitive sciences in their teleological dimension are oriented towards constructing as faithful models of the mind as possible, they must rely on the principle *salva phenomenis*. The extent of how much they will be able to meet this challenge will also indicate the extent of how sensible it is to maintain not just that the models of the mind they offer are adequate, but also whether they might be considered as a part of the humanities.

Acknowledgement:

This article was written with the support of the Polish National Science Centre Fund (2012/07/D/HS1/01099).

References:

1. Arendt, H. The Conquest of Space and the Stature of Man. *The New Atlantis*. Number 18, Fall 2007, 43-55.
2. Auyang, S.Y. *Mind in Everyday Life and Cognitive Science*. Cambridge, MA, MIT Press, 2001.
3. Bogen, J. 'Saving the phenomena' and saving the phenomena. *Synthese* 182 (1), 2011, 7-22.
4. Dennett, D. *Consciousness explained*. Penguin, London, 1991.
5. Drummond, J.J. Phenomenology: Neither auto- nor hetero- be, *Phenomenology and the Cognitive Science* 6 (1-2), 2007, 57-74.
6. Duhem, P. *To save the phenomena*. Dolan, E. and Maschler C. (transl.), Chicago and London, University of Chicago Press, 1969.
7. Gallagher, S. and Zahavi, D. *The Phenomenological Mind*. London, Routledge, 2012.
8. Husserl, E. *Ideas Pertaining to a Pure Phenomenology and to Phenomenological Research: First Book: General Introduction to a Pure Phenomenology*. Kersten, F. (tranls.), Dordrecht, Springer, 1982.
9. Husserl, E. *Philosophy and the Crisis of European Man*. [in:] Husserl E., *Phenomenology and the Crisis of Philosophy*. Laurer, Q. (transl.), Harper & Row/Torchbook, New York 1965, 49-192.
10. Klawiter, A. Thinking like a philosopher, arguing like a cognitive scientist. *Diametros* 3, 2005, 176-181. (in polish)
11. Klawiter, A. Why did Husserl not become the Galileo of the science of consciousness?, *Poznań Studies in the Philosophy of the Sciences and the Humanities* 82, 2004, 253-271.
12. Kosman, A. *Saving the Phenomena. Realism and Instrumentalism in Aristotle's Theory of Science*. [in:] Kosman, A. *Virtues of Thought. Essays on Plato and Aristotle*. Harvard University Press, 2014, 138-156.
13. Liu, C. *A Study of Model and Representation Based on Duhemian Thesis*. [in:] Magnani, L. and Li, P. (eds.) *Philosophy and Cognitive Science: Western & Eastern Studies*. Berlin Heidelberg, Springer-Verlag, 2012, 115-142.
14. Marbach, E. No heterophenomenology without autophenomenology: Variations on a theme of mine. *Phenomenology and Cognitive Science* 6, 2007, 75-87.
15. Meixner, U. *Materialism Does not Save the Phenomena – and the Alternative Which Does*. [in:] Koons, R.C. and Bealer, G. (eds.), *The Waning of Materialism*. Oxford/New York, Oxford University Press, 2010, 417-437.
16. McGinn, C. Can we Solve the Mind Body Problem? *Mind* 98 (1989), nr 891, 349-366.
17. Miah, A. *The Deep Blue Grasshopper: Playing Games with Artificial Intelligence*. [in:] Hale, B. (ed.), *Philosophy Looks at Chess*. Chicago, Open Court, 2008, 13-23.
18. Merleau-Ponty, M. *The Structure of Experience*. Fischer, A.L. (transl.), Beacon Press, Boston, 1963.

19. Owen, G.E.L. *Tithenai ta Phenomena*. [in:] Mansion, S. (ed.), *Aristote et les problemes de la methode*. Publications Universitaries, Lovain, 1961, 113-126.
20. Rinofner-Kriedl, S. *What is Wrong with Naturalizing Epistemology? A Phenomenologist's Reply*. [in:] Feist, R. (ed.) *Husserl and the Sciences. Selected Perspectives*. University of Ottawa Press, Ottawa, 2010, 41-68.
21. Roy, J.M. *Saving the intentional phenomena: Intentionality, Representation, and Symbol*, [in:] Petitot, J., Varela, F.J., Pachoud, B. and Roy, J.M. (eds.) *Naturalizing Phenomenology*. Stanford University Press, 1999, 111-147.
22. Roy, J.M., Petitot, J., Pachoud, B. and Varela, F.J. *Beyond the Gap: An Introduction to Naturalizing Phenomenology*, [in:] Petitot, J., Varela, F.J., Pachoud, B. J. and Roy, M. (eds.) *Naturalizing Phenomenology*. Stanford University Press, 1999, 1-83.
23. Searle, J. *The Rediscovery of the Mind*. MIT Press, Cambridge, MA, 1992.
24. Spiegelberg, H. *The Phenomenological Movement. A Historical Introduction.* The Hague, 1965, vol. II.
25. Stalnaker, R. *Varieties of Supervenience*. [in:] Stalnaker, R. *Ways a World Might Be*, Oxford University Press, Oxford, 2003, 86-108.
26. Weizsäcker, C.F.v. *Deutlichkeit*. Hanser, München, 1978.
27. Wilson, R.A. and Keil, F.C. (ed.), *The MIT Encyclopedia of the cognitive sciences*, MIT Press, Cambridge, MA 1999.
28. van Fraassen, B. *The Scientific Image*. Oxford University Press, Oxford 1980.
29. van Fraassen, B. To save the Phenomena. *Journal of Philosophy*, 73 (18), 1976, 623-632.
30. Varela, F. Neurophenomenology: A methodological remedy for the hard problem. *Journal of Consciousness Studies* 3/4, 1996, 330-49.
31. Zahavi, D. Phenomenology and the Project of Naturalization. *Phenomenology and the cognitive sciences* 3/4, 2004, 331-347.
32. Zahavi, D. *Husserl's Phenomenology*. Stanford University Press, Stanford 2003.
33. Zahavi, D. Killing the straw man: Dennett and Phenomenology. *Phenomenology and the Cognitive Science* 6 (1-2), 2007, 21-43.

Notes:

---

[i] The author wishes to thank the anonymous reviewers for their valuable comments that contributed to improving the text, as well as Mr. Szymon Szymczak, M.A., for stimulating discussions regarding the relationship between phenomenology and cognitive sciences.

[ii] I'm using this verb in the sense of denying existence of entities that cannot be individuated or identified (following ontological methodology of W. V. Quine). As regards comparison of the naturalised epistemology by Quine with anti-naturalistic epistemology by Husserl cf. [20].

[iii] As regards discussion of Dennett's views on phenomenology, including the issue of relation between auto and hetero-phenomenology, cf. [5], [14], and [33].

[iv] Of course, apart from these fundamental functions, there still are secondary ones–the traditional philosopher's task: being familiar with the philosophical tradition, using formal techniques of argumentation etc.

[v] Although analogies, metaphors etc., can not replace arguments, their heuristic function is crucial. E.g. Dennett sees his contribution to the study of consciousness as a replacing one family of metaphors and images with another: 'It's just a war of metaphors, you say—but metaphors are not <<just>> metaphors; metaphors are the tools of thought. No one can think about consciousness without them, so it is important to equip yourself with the best set of tools available', [4, p. 455].

[vi] As regards presenting differences between Galileo's method of idealization in his studies of nature and the method of examining consciousness by Husserl cf. [11].

[vii] The *salva veritate* (or intersubstitutivity) formula originated by Leibniz states that two expressions are said to be synonymous if the substitution of one for the other does not change the truth value or meaning of any context in which either expression appears.

[viii] Although the interpretation of phenomenology I suggest here, is primarily based on the ideas of Husserl, it also admits (see examples given below that illustrate how the *salva phaenomenis* principle operates) subsequent modifications of the phenomenological method.

[ix] The above quotation is a Searle's statement, in which (in order to raise controversies) he speaks as the representative of the cognitive sciences.