

Zeit ein philosophisches Begreifen bereithalten kann, als erste Voraussetzung dafür, daß auch das Rettende wirklich wachsen kann. So macht Ungler auch immer wieder deutlich, daß das zeitgenössische Denken mit Hilfe der Hegelschen Logik als in der Wesenslogik verhaftet eingesehen werden kann, wodurch dann auch die Probleme und Konsequenzen dieser Geisteshaltung deutlich erkannt werden können. Dieses Denken dringt gerade nicht zur lebendigen Kraft des Selbst vor, durch die der Mensch erst Mensch ist, und deren er sich bewußt werden muß, um das, was er von seiner Anlage her schon immer ist, auch zu einer bewußt gestalteten Wirklichkeit werden zu lassen, wo die Gewalt des Wesens gegen die Objekte, zu denen der Mensch in diesem Verstehenshorizont auch geworden ist, überwunden werden kann (vgl. 520).

Vor diesem Hintergrund soll allerdings auch eine kleine kritische Anmerkung nicht unterbleiben. Die von den Herausgebern bearbeitete Vorlage lag nur als maschinenschriftliches Typoskript vor. Man steht natürlich immer vor der Aufgabe mit der Vorlage im Sinne des Verfassers möglichst behutsam umzugehen, und so haben die Herausgeber auch nur selten und – deutlich kenntlich gemacht – in den Text verbessernd oder erläuternd eingegriffen. Man hätte sich aber trotzdem an der einen oder anderen Stelle doch eine Erläuterung oder auch Quellenangabe der Bezüge auf philosophische Positionen gewünscht, um den Unglerschen Text noch besser nachvollziehen zu können. Das beigefügte Personen- und Sachregister ist in dieser Hinsicht eine lobenswerte Hilfe. Die für die weitere Verbreiterung dieses Werkes hoffentlich bald nötige 2. Auflage sollte dann auch die doch hin und wieder auftretenden Schreibfehler korrigieren. Da die „Einleitung“ Bestandteil des Unglerschen Textes ist, sollte bei der Nennung der Herausgeber unter dem Titel deutlich werden, daß diese für die „Einführung“ und nicht die „Einleitung“ verantwortlich sind.

Insgesamt ist aber diese Ausgabe des Unglerschen Werkes für philosophisch Interessierte als besonders lesenswert zu empfehlen.

**Klaus Honrath**

**Thomas Fuchs**

## **Ecology of the Brain**

### **The Phenomenology and Biology of the Embodied Mind**

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In contemporary inflation of books thematically focused on problems and evaluations regarding brain and “phenomena” of mind and consciousness, Thomas Fuchs’s work *Ecology of Brain* is a unique, critically sharp contribution. It is marked with fascinating and paradigmatic interdisciplinary integration of philosophical reflexion and impressive range of neuroscientific knowledge, exceeding the often narrow, reductive and mono-perspective – “exact” – scientific thinking, to represent a phenomenological approach for the future interdisciplinary studies on brain and mind. The book is based on a German precursor entitled *Das Gehirn – ein Beziehungsorgan* (*The Brain – A Relational organ*), currently in its fifth edition. Its continued success has encouraged the author to make it available to the international public, but in a completely revised and extended form. Through the new title *Ecology of the Brain*, author indicates the crucial role of, like he says – the *Umwelt* for understanding the human brain, namely as the organ of relation, interaction, and the resonance: with the body itself, with the immediate environment of the organism, and with the social and cultural environment of the life-world. The given thesis is fundamental for his study and Fuchs is evaluating it systematically through the two main heads, “Criticism of neurobiological reductionism” and “Body, person and the brain”. The first head is divided into two chapters, “Cosmos in the head?” and “The brain as the subject’s heir?”. Each chapter is divided into many discursive “atoms”, and there is too many of them to be explicated in this review. Chapter “Cosmos in the head” contains sharp criticism of the neuroconstructivistic epistemology according to which, Fuchs states, the phenomenal reality is to be understood as an internal mirroring or a reconstruction of the outer world using the neuronal process. Fuchs claims that the idealistic theory of representation is still the basis of this conception. He is comparing the thoughts of Democritus, Galilei, Locke and Kant with the contemporary representatives of neurocognitivistic domain. Regarding the Metzinger famous “Ego tunnel” example, Fuchs writes:

“According to this neuroconstructivist conception, the real world is dramatically different from the one that we experience. What we perceive are not the things themselves, rather the mere images that they evoke in us. We find ourselves in a dark room and look at a show projected on its walls by the tireless work of myriads of neuronal brownies. The real world is a rather bleak place of fields of energy and movements of particles, without any qualities whatsoever (...). Of course, even neuroscientists or neurophilosophers continue to live this insight in the everyday world of ‘naïve realism’. And they are well advised to do so; for it the world of our experience was in fact only a virtual product of our brains, how could we ever find out anything about the actual world ‘out there’.” (4)

His scepticism regarding the narrow approach of neurocognitivism and neurophilosophy is present throughout the book, and the motive of “neuromorphism” and “computative conscience” is maybe the *leitmotif* of his critique. Among many remarks, I am highlighting the one that is focused on neurocognitivists making fun of idealism philosophers while making the same mistake in idealising the brain and giving “it” godly features and autonomy. This is the second biggest claim in Fuchs book – that brain is not an entity of its own but the organ of mediation – the living organ. Fuchs writes:

“The idealistic epistemology – truly, under changed circumstances – has also made its way into brain research and the neurophilosophy related to it. For them, too, we only live in a subjective reality which is, however, now constructed or simulated by the brain. In the interior space of consciousness, the subject, the lonely prisoner in his citadel, watches the pictures of the unreachable outer world. The only thing is that these pictures are no longer constructs of Kantian faculties of understanding, but rather of the underlying brain process. What corresponds to the Cartesian *idea* or images are the “neural representations” – specific excitation patterns through which the brain mirrors the structures of the outer world. As can be seen, the idealistic chamber of consciousness and the neurobiological inner world of the brain match one another surprisingly well. Neuroconstructivism only makes the connection between the two traditions. Thus materialism and subjective idealism paradoxically extend hands to each other as they ascertain the point they have in common: namely that the subject has no part in the world. Admittedly, materialism can finally triumph because, with the reduction of the ability to recognise and act on the processes of the brain, the idealistic subject is no longer left even with the power over his place.” (8)

The epistemological conception of the picture of the world as an internal construct Fuchs criticises three-ways. The first criticism is focused on embodied perception. It emphasises the enactive character of perception which is always connected with the operative capacities of the body to prove that the subjective space of the body is not only

virtual, and its coextension with the space of the objective body or the entire organism is accounted for in detail. Fuchs implements the concept of coextension of lived body (*Leib*) and physical body (*Körper*). It is the concept created and raised by Edmund Husserl, and it had a further conceptual development in Merleau-Ponty’s phenomenology. Merleau-Ponty is Fuchs’s philosophical “leader”, and his specific phenomenological approach is one of the foundations of this book. Fuchs is combining his phenomenological reflections with the concepts of consciousness from the neurocognitivist domain in the lucid and exemplar manner that is fertile and extremely potent for further development of the wideness of the approach to mental health. And particularly in this chapter, Fuchs uses the given distinction to criticize Metzinger and his “phenospace” concept. He is giving the example of the prick of the needle in the hand, and claims that although the phenomenon of phantom pain shows us that the organism and brain induce a sensation of pain without the respective limb, this does not make the normal case any less astonishing, and is asking: how is it actually possible that we feel the pain in reality where the matching wounded part of the body is situated, too, and not in the brain? Furthermore, Fuchs claims that as soon as we enter an *intersubjective* situation as the patient already mentioned at a doctor’s visit, it becomes immediately clear that the subjective experience and the objective situation, the sensation of pain and its observable physical cause, in no way belongs to two separate worlds. Fuchs writes:

“Since, according to the neuroconstructivist premise, every brain only produces its own virtual space, there cannot be any ‘sharped phenospace’ of doctor and patient. For if perception could, without remainder, be described and explained as a physical process happening between an object and a brain, *then two persons could never observe one and the same object*. The two processes would run, starting from the object, in different directions and remain strictly separated from one another. Both persons would thus be locked in their particular world, all the more since they remained themselves only simulations for each other – in the end leading to a *neuro-solipsism*.” (13)

Fuchs sets a thesis that the fact that bodily consciousness does remain coextensive with the organism shows that it does not spring up as a separate entity, “like Athena from the head of Jupiter”. Rather it is, from the very beginning, an *embodied and extended consciousness*, and it presents the “integral” of the living organism altogether, not a phenomenon encapsulated in the brain. I pay special attention to this critique because it is probably the fundamental thesis of the whole

book, evaluated through various examples and approaches. The second critique points to the fact that in contrast to the conception of a phenomenal interior world, the objectifying achievement of perception, which brings us into direct connection with things using circular interactions, can be recognised. In the third critique, Fuchs is taking the example of colours and claims that of the mere virtuality of perceived qualities are rejected.

In the second chapter of the first head, “The brain as the subject’s heir?”, author criticises those claims according to which subjectivity is to be regarded as a construct or epiphenomenon of neuronal processes, and that one’s experience of agency and freedom of choice should be seen as an illusion. First, he shows that the subjectivity of “experiential facts” cannot be reduced to objective or physical facts about brain processes. Likewise, the reduction of the intentionality of consciousness to relations of representation is refuted. Moreover, claims Fuchs, the identification of the subject with the brain leads to fundamental categorical mistakes which will be examined as “mereological fallacy” and the “localization fallacy”. Fuchs writes:

“The basic problem of neurobiological research into consciousness consists, when all is said and done, in the *reification of consciousness itself*. It then no longer appears as an activity of living organisms, no longer as a relationship between subject and works which transcends the boundaries of the body. It is rather transferred into the objective world, as if it were an object in spatiotemporal reality which could be physically described, or, at least, made indirectly visible by physical means. This leads us to a further fallacy.” (46)

On the given basis, the author is developing a critique of the powerlessness of the subject and summarises the chapter with the analysis of the basic “naturalistic fallacy” of an objectifying account of consciousness which believes that consciousness can unroot itself from the life-world, and place itself into a virtual cosmos. On these assumptions, in the following chapters of the book author is developing a view of the brain as compatible with life-world experience.

The second, largest head of the book – “Body, person, and the brain” – contains six chapters. In the first one, titled “Foundations: Subjectivity and life”, Fuchs develops the concept of *embodied subjectivity*, initially grounded in the phenomenology of bodily existence. He writes:

“...consciousness cannot be envisaged as an invisible chamber that is literally contained in the head and concealed behind the sensory organs. Indeed, it is not contained at all ‘in the physical body’, but rather is *embodied*: conscious acts are particular,

integral activities of a living, self-sustaining, sensory-receptive, and mobile organism. Therefore, the primary dimension of consciousness is the reciprocal, homeostatic, sensorimotor, and active-receptive relationship of the living organism and the environment.” (69)

A central concept of the following research is the dual aspect of the living person as a dialectical unity of the “subjective body” and the “physical body”. The mind-brain problem is therefore described as the “subjective body-physical body problem”, and is consequently developing an ecological conception of the living organism. Fuchs focuses, on the one hand, on living being’s self-organisation and subjectivity, and the other hand, on its relationship with the environment concerning metabolism and the sensorimotor cycle.

“In order to maintain homeostasis, the changing matter must be repeatedly found and incorporated. By its needs, life is necessarily connected to its environment and depends upon exchange (Jonas 2001). In this way, a living organism’s *metabolism* is its primary connection with its environment.” (86)

Fuchs concludes this chapter’s theoretical conception with an analysis of the specific, *circular causality* of the living system. Essentially, this incorporates the concept of *capacity* as a living being’s holistic, dispositional property, using which it becomes the cause of its enactments of life. Fuchs offers a few helpful graphs that are showing the vertical and horizontal circular causality. Vertical causality relates to 1) the top level of the organism as a whole, 2) the intermediate level of partial systems and organs, 3) the basal levels of cells, 4) the elementary or micro-level of material parts (macro-molecules, atoms). The horizontal circular causality emerges, on the one hand, from the multifaceted feedback effects *within* the organism, which do not occur hierarchically between different levels but on a single level, which refers to reciprocal relationships between cells or organs, the cascade of blood coagulation etc. However, the feedback relationships and functional cycles of organism and environment also function horizontally. The circular relationship, claims Fuchs, initially consists at a basal level in the metabolism, which is to be seen as part of the general regulation of homeostasis within the organism, under changing environmental conditions. The horizontal metabolism is linked with vertical, formative processes, which assimilate the absorbed substance, transforming it into the substance of the living organism.

“The relationship of *perception*, movement, and *environment* also functions in a circular way: a living organism’s reaction to external stimuli is responded to by the environment, which in turn has an impact on the organism, and so on, until the relationship

of individual environment attains a new balance. Here, the brain again functions as a *transformer* between the sensory stimuli and motor actions linked in feedback loops that extend into the environment (...) the connection of vertical (internal) and horizontal (external) causality now leads to a notion of *integral causality*. Through this, a living organism realizes certain achievements in conjunction with a complementary environment that contribute to the continuation of its life: perceiving, desiring, or grasping something, walking towards a goal, speaking and writing and so on. Such achievements represent acts of life which do not only relate to partial processes of the organism (for instance, absorbing oxygen through haemoglobin, the secretion of stomach acid, the patellar tendon reflex, etc.). Rather, they engage the organism as a whole. This means that in their realization, the living being is revealed in its dual aspect as a physical and a lived body-as feeling, perceiving, desiring, and acting being.” (99)

This quotation is containing the most relevant motives of Fuchs reflection – an interweaving of circular and horizontal causality which opens the door for the concept of living being’s consciousness, which elaboration will take place in the further chapters of the book. It represents the propaedeutic for the next two chapters on the brain as an organ of a living being and a person. Basically, in this chapters, Fuchs takes a perspective on the brain as the central organ of regulation and integration, which is connected to the organism through various vegetative, endocrine, and autonomous regulatory feedback loops. The given resonance between brain and organism Fuchs is perceiving as the basis of a background feeling of the body – a “feeling of being alive” that Fuchs takes as the foundation of all conscious experience. This chapter contains very interesting insights on emotions, which are perceived as the states of the entire organism through which the living creature is specifically directed towards affective qualities of its environment. The relations of brain, organism and environment are portrayed using the *functional cycle of perception and movement*. The linear model of stimulus-response, present as the dogma in most of the neurocognitivist domain, is replaced by the unity of organism and environment as a superordinate system in which capacities of the living incorporated in the brain are jointed together with suitable objects. As an original and crucial consequence of this extended or ecological model, consciousness is observed as the *integral of the ever new closed functional loop between organism and environment*.

Next step of this chapter’s causal order relates to neuroplasticity, and the main focus lies on an analysis of implicit memory, in which particular components of perception and movement are integrated into overarch-

ing patterns. These analyses Fuchs uses as a foundation for the following investigation into the higher cognitive function of the brain, which is mainly oriented towards gestalt perception, and the focus lies on the principle of *transformation*. This chapter is the longest and the most intriguing. It is concluded with a critical consideration of the notions of *information* and *representation* in the cognitive neurosciences, which are then contrasted with the alternative concept of *resonance*. These results are interpreted in terms of a Hegelian notion – of *mediated immediacy*. Fuchs writes:

“So the transformation results in *phenomenal transparency*: the individual elements are merged in the perceived holistic gestalt and therefore recede into the background. In other words, perception has the structure of *mediated immediacy*: individual elements become ‘transparent’ for the gestalt, or put differently, they take on the *meaning* of the gestalt for the perceiving subject.” (146)

Chapter “Brain as the organ of the person” examines the socially and culturally scaffolded development of the human brain, with the focus on early childhood, and Fuchs is offering an example of the dyadic relationship between mother and child, focusing on interactive forms of implicit memory. As the neurological basis of the given development, the author presents and discuss the attachment system and the social resonance system, which he calls “mirror neurons”. In the following discourse, he turns to secondary intersubjectivity, which manifests itself towards the end of the first years of life. Beings understanding other beings as intentional agents are building the foundation for later perspectives and the concept of *eccentric position* of human beings. The given presents the basis for the examination of the acquisition, as the anchoring of an embodied interpersonal practice, connected with the biological resonance system of early mentioned mirror neurons. Fuchs is finishing chapter’s discourse with some fundamental considerations concerning brain and culture.

“Findings in both cultural anthropology and developmental psychology congruently show that the specific social and cognitive capacities of humans have developed through cultural evolution which became increasingly independent from its biological basis (Donald, 2001). Therefore, humans, like no other creature, need their conspecifics in order to develop their dispositions into capacities. Nowhere else in the animal kingdom is progeny so dependent on support and teaching by the parents for such a long time. No other species comes into the world with as plastic and malleable a brain as do humans. To a significant degree, their neurological predispositions are ‘open loops’ that need to be completed by the emotional, social and intellectual compe-

tences of caretakers in order to become stably fixed capacities.” (205)

Before the conclusion of the book, author by chapters examines “The concept of dual aspectivity” and “Implications for psychiatry and psychological medicine”. First of them presents the examination of “personal dual aspectivity”. The unity of the living organism and its enactments of life provides an alternative to the separation of the mental and physical in the philosophy of mind, and the critical consideration of identity theory further develops this conceptual approach. The concept of integral causality is then differentiated in the light of emergence theories, emphasising the primacy of holistic functions over their components, and the reciprocity of downward and upward causation and the role and function of consciousness as the integral of the organism-environment interaction is discussed in detail. The given is followed by several conclusions regarding the intentional determination of neuronal processes, particularly embodied notion of free will, as well as an explanation of psychophysical interrelations. The last chapter examines the conception presented earlier, with the focus on implications for psychiatry and psychological medicine. Regarding the mental disorders Fuchs writes:

“On this basis, the concept developed here may be outlined as follows: mental disorders are marked, on the one hand, by a disruption of *vertical circular causality*, that is, of the interplay between lower-level processes and higher capacities of the organism. As we will see, this primarily affects a patient’s relation to him- or herself, which continually influences the course of the illness including the neuronal processes on the micro-level. On the other hand, mental disorders are characterised by a disruption of *horizontal circular causality I*, that is, of *social relationships and the ability to adequately respond to the demands and expectations of others*. This leads to negative feedback loops in socio-functional cycles, which also have a crucial influence on the course of the illness. Both kinds of circular causal processes are tied to mediation by the brain, but cannot be located within it. For this reason, reduction of mental disorders to brain disorders is in principle not possible.” (256)

The quoted reference is a representative argument opposing the neurobiological “dogma” which is dominant in most of the psychiatric world. The question is whether institutional psychiatry will accept Fuchs’ “prophetic” claims and directions to upgrade their scientific practices and step into the brighter

future of mental disorder treatment. Fuchs is remarking that the concept of mental illness as a fundamentally circular process has a pivotal impact on a person’s self-experience and interpersonal relationship, and this dimension is aetiological. Somatic therapy and psychotherapy are then contrasted against the standpoint of dual aspectivity, and the principle of transformation is particularly significant. In summary of the chapter, an orientation towards subjectivity is shown to be indispensable for psychopathology and psychological medicine.

To summarise, we can conclude that the interdisciplinary approach of exact sciences (context of neuroscience) and philosophy (context of phenomenology) shows to be a methodological prerequisite for gaining and creating the plausible theory of consciousness. Fuchs’ concepts won’t untie Gordian knot of defining consciousness and it isn’t an instant cure for the neurocognitivist delusions, but it can be used as a platform for the wide plethora of new researches which can provide an answer to many questions on various mental issues. Undoubtedly, it can be a starting point for a future of interdisciplinary approach regarding the fusion between phenomenology and neuroscience, which is also a prerequisite and simply a necessity for upgrading psychiatry and psychology. I will conclude this review with Fuch’s definition of mind, which includes all the crucial elements elaborated in the book:

“Mind and consciousness arise only in an overreaching and dynamic interaction of organism, brain and environment. Cognitive processes are not produced by an isolated neural apparatus which internally mirrors the world by means of representations. Much rather, they constantly transcend the boundaries of brain as well as the body. The mind is based on *meanings*, and meaning on *relations*. They take root in the early experiences of joint attention, pointing, in the shared use of language, and in the intersubjective symbolism of words. Correlates of these overreaching meaningful relations are functionally and morphologically inscribed in the brain throughout the course of socialization as neural patterns. Thus, the brain becomes the organ of the mind – but the mind is not ‘in the brain’, for *it is the overarching manifestation, the gestalt, and the ordered patterns of all relations that we have to our environment as animate beings, and as humans to our fellow humans.*” (207)

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