

ADRIANA SCHETZ

CONSCIOUSNESS AND PERCEPTION  
FROM BIOLOGICAL EXTERNALISM POINT OF VIEW\*

I. INTRODUCTION: BIOLOGICAL EXTERNALISM

The problem analysed in this paper can be posed as a question: what does it mean for the creature to be conscious? This question has generated a wide variety of responses. My analysis focuses on the phenomenon of perceptual experience which results from live creature activity. The idea that perception is the kind of phenomenon which cannot be understood, regardless of the contextual lifeform, has been developed by many authors. A selected sample of these kinds of theories include:

(1) the ecological theory of perception proposed by James Gibson; (2) a view which I call in my monograph *Biologiczny eksternalizm w teoriach percepcji* (2014)<sup>1</sup> a “classical enactivism” (Francisco Varela, Evan Thompson, Eleanor Rosch); (3) the neurophenomenology developed by Varela, Thompson, Rosch, and Robert Hanna; (4) a conception entitled in the monograph radical enactivism advanced by Alva Noë and Kevin O’Regan. Since a deep common root among these theories can be recognized, I decided to introduce a collective label for them. Namely, I termed them theories of perception and consciousness in the spirit of biological externalism.

The reason for selecting these views is that they vividly exemplify an approach which has been taken very seriously in recent discussions on the

---

Dr hab. ADRIANA SCHETZ, prof. US — Uniwersytet Szczeciński, Instytut Filozofii, Zakład Epistemologii; adres do korespondencji — e-mail: [adriana.schetz@gmail.com](mailto:adriana.schetz@gmail.com)

\* The basis for this paper is material which I had used to prepare my habilitation files, published in Polish in 2014: *Biologiczny eksternalizm w teoriach percepcji* (Szczecin: Wydawnictwo Naukowe Uniwersytetu Szczecińskiego, 2014). The monograph was published in Polish but the English translation of the title is as follows: *Biological Externalism in the Theories of Perception*.

<sup>1</sup> See the previous note.

nature of perception and which combines perception and action, while paying special attention to the notion of the embodiment of perception. This approach is typically classified as the tradition of enactivism, although in my monograph *Biologiczny eksternalizm w teoriach percepcji*, I argue that “biological externalism” would be a more fitting name for the views it encompasses. The name highlights two chief aspects of the approach in question: (a) the connection between perception and the activity of living beings, and (b) an anti-internalism regarding sensory experience.

The new terminology is motivated by the significant differences between various theories within the enactivist camp. Not all theories labelled as “enactivism” limit themselves to emphasizing, in a fairly conventional way, the identity of perception and action. Nevertheless, there are at least two features they all share. First, they all highlight a connection between the categories of perceptual experience and the category of existing as a living, active organism, within which the experience is constituted. Secondly, they collectively criticize the internalist approach to perceptual states, viewing it as an approach which leads to methodological solipsism. This unwelcome consequence would result from the necessity of “subtracting” a perceiving mind from the domain of scientific explanation (which takes into account the role played by the external environment) and from focusing exclusively on the internal states of the perceiving subject in order to understand the nature of experience.

Friends of the abovementioned theories propose to replace internalism with externalism, the scope of which can be extended to either the bearer of perceptual experience, or to perceptual content. However, the theory can take a very radical form (as the ecological theory of perception and radical enactivism illustrate), in which case it leads to the conclusion that neither the bearer nor the content of experience is something that can be found in the head of a perceiving subject. But what does it mean, exactly, that neither the bearer nor the content of experience is something that may be found in the creature’s mind?

## II. WHAT IS A MENTAL REPRESENTATION?

I will begin with the issue of classifying the senses. There is a widespread opinion that the division of the five senses — into sight, hearing, touch, taste and smell — helps to capture the nature of perception and perceptual expe-

rience. I put this opinion into question by arguing that, firstly, even within a single kind of sense—the sense of sight, for instance—one can distinguish various competences and dispositions, which satisfy the criteria for being a distinct sense, e.g. balance, face recognition, depth perception (3D), and the sense of time passage. Secondly, the traditional strategy, which classifies the senses according to distribution of the sense organs, seems less adequate and fruitful than its reverse, i.e. the strategy which looks for the anatomical structures responsible for the occurrences of certain sensory experiences. Thus, instead of appealing to the five senses on the basis of the fact that there are five specific sensory channels in *Homo sapiens* I propose to begin with our perceptual experiences, such as the perception of depth or the three-dimensionality occurring during visual, tactile or auditory activity. The next step consists in identifying such criteria for a division of the senses, which is based on factors present in all forms of experience of (in this case) three-dimensional space. Now, one can see that the investigation in question lead to two distinct theses or principles:

(ES) The experiential criterion for dividing the senses: different kinds of experiences involved in perception constitute perception by means of different senses.

The principle ES indicates that the division of the senses is determined by a mental rather than a physiological criterion. Thus the idea of stating the ES more precisely is as follows:

(MS) The mental criterion for dividing the senses, namely, the distinction between the types or kinds of senses is based on two criteria: (1) the manner in which the experiences of different kinds of objects and their properties are combined; (2) the way in which the experiences in question are described once the ways in which they are produced by the perceptual system (the modalities) are taken into account.

The principle MS was partly inspired by the work of Matthew Nudds (NUDDS 2011), but its application to the reflection on the nature of perceptual experience and the postulate of revising the classification of the senses is original. As long as one emphasises that, in analysis of phenomenon of perception, the crucial role is playing not by physiology but by phenomenology—it allows one to concentrate on a very important topic: what type of relation exists between sensing and being conscious?

In his brilliant book on the origins of consciousness Peter Godfrey-Smith describes sensing in a way which distinguishes cephalopods (GODFREY-SMITH 2016). He is right stating that William James made a great step forward by emphasizing the importance of not only biological evolution in the development of conscious minds but the importance of the evolution of the universe as a whole (GODFREY-SMITH 2016, 11). James was not the first author who recognized the importance of the question: What does it mean for an organism to feel something subjectively? Nor is this question detached from that about the nature of conscious experience as a natural, cosmological phenomenon. Rather, James was the proper person in the proper place with his category of stream of consciousness. If consciousness is comparable to a stream, it cannot be realized as a point, i.e. even in one single creature it can be spread like a stream. This wild spread sentience gives James the green light to claim that sentience comes before consciousness. As I understand, the idea unfolds like this: sentience is understood as a water blob, and consciousness as a stream. To be a stream, however, means to exist as a whole, so, the question is: What guarantees the wholeness in stream of conscious experiences? Let me explain the point further.

It is clear to me that the argumentation can work in same way as Cartesian reasoning, whereby it is proved that the subject of thought exists because that which is thinking cannot be “unsubjected” in the meaning of somebody who consciously thinking thinks. By analogy, according to views collectively referred to as biological externalism, experience cannot exist as unsubjected phenomenon, meaning that, for every creature to which we ascribe any kind of feelings, there is a conscious subject of those feelings. Finally, my perspective on this can be seen as aiming to the development and strengthening of Godfrey-Smith’s position, expressed in the sentence that: “Sentience comes before consciousness” (GODFREY-SMITH 2016, 79). My position goes a little beyond Godfrey-Smith’s theory, at the point, in which I prefer to say that sentience goes hand-in-hand with consciousness or even with self-consciousness. The reason is that, for being the subject of experience, it is sufficient to have an elementary form of subjective activity as described in Part IV of the paper. This form of activity is based on the procedural knowledge concerning how our sensations change during our movements. But it is also radically different from a Cartesian conception of the “focused” self, as an effect of stream of consciousness in which the self is like Hume’s bundle of experiences rather than like that of a singular, homogenous “I.” In this conception of stream of experiences or sensations,

subject is understood, from my view, as the condition of being sentient. Without this condition, an experience or sensation is not a subjective phenomenon any more.

In the next step, I set forth a conception of perceptual information as something on which the stream of perceptual consciousness works. As I try to show, there are several different means of characterizing the notion of information in such a way as to make it useful for philosophers of perception, although, if it is to become beneficial for cognitive scientists as well (in my opinion), it must take into account the following idea:

(ICP) The informational conception of perception: Information is the basic unit on which the perceptual system operates.

Although this thesis may initially seem trivial, it gains significance in the context of the discussions with behaviourism, the adequacy of which I call into question. It is not an isolated stimulus, as behaviourists would have it, but there is a complex and interpreted whole called information that constitutes the content of perceptual experience. Thus, the new addition:

(I) Information is a unit with meaning for the system which processes it.

It should also be emphasized that the term “meaning” need not be limited to the linguistic context, meanings, understood as so-called natural properties, can be identified even for such relatively-unsophisticated, living systems such as bacteria. For bacterial information can be identified with an organism of the feeder or glucose, i.e. an element of the environment which guides its action while simultaneously satisfying the criterion of significance for such a system as bacteria.

Additionally, I recognize a number of types of information, the list of which follows John Heil’s (HEIL 1983):<sup>2</sup>

1. Non-relativised information, i.e. information directly given by a certain fact.
2. Relativised information, i.e. information given conditionally.
3. Further relativised information, i.e. information given by means of a certain law of logic or some nomic regularity.

My appeal to this classification is not purely reconstructive, but rather serves a certain further goal. More precisely, its aim is to prepare the theoretical ground for one of the key ideas of the paper, namely the claim that the information available to the subject in an act of perception is not constructed

---

<sup>2</sup> This is not a new theory but I find a vital potential in it when thinking about wayward term “information.”

by him (as representationalism would have it), but is extracted from the objectively-given perceptual indicators (as the antirepresentationalist approaches hold), and, therefore, perceptual consciousness is not a kind of higher order state with reference to information but is a state modified by information (“Non-relational conception of consciousness” = SCHETZ 2016). In the ecological theory of perception—the theory classified as belonging to the tradition of antirepresentationalism about perception—this classification proves extremely handy, since every attempt at showing a dependence between the perceptual activity of the subject and the perceptual information encoded in the order of incoming stimuli has to take into account the first meaning of information specified by Heil. As James Gibson emphasised:

Perceiving is an achievement of the individual, not an appearance in the theatre of his consciousness. It is a keeping-in-touch with the world, an experiencing of things rather than a having of experiences. (GIBSON 1979/1986, 239)

And, most importantly:

It involves awareness-of instead of just awareness. [...] Perception is not a mental act. Neither it is a bodily act. Perceiving is a psychosomatic act, not of the mind or of the body, but of a living observer. The act of picking up information, moreover, is a continuous act, an activity that is ceaseless and unbroken. The sea of energy in which we live flows and changes without sharp breaks. (GIBSON 1979/1986, 239–40).

The difference between this idea and one of the most vivid alter egos of biological externalism, namely John Searl’s conception of biological nature of consciousness, is that biological externalism adopting Gibson’s view ascribes experience to the whole live subject as an unpartable part of the environment.

### III. PERCEPTION AND THE ENVIRONMENT

I see a connection between the theories of perception listed in the introduction, which together constitute an approach I call biological externalism, on the one hand, and the ecological theory of perception formulated by Gibson, on the other hand. Briefly, the ecological theory of perception reduces perception to the activity, based on the mechanism of attention, direct tracking of the perceptual invariants (the invariants contained in the optical, auditory etc. order) arising from the environment of the perceiving

subject who is an unpartable part of this environment. The ecological theory of perception prepares one for a change in thinking about perception: from thinking of it as a phenomenon limited to viewing mental pictures or forming beliefs which *de facto* “separate” the perceiving subject from what is perceived, to construing it as an activity directed “outside”, toward the environment, in which due to the mechanisms of attention the subject follows the perceived properties of the environment (procedural knowledge).

Everyone who gives serious consideration to the question regarding what role consciousness plays in perception, is forced to look for an answer to the question, namely: What, from the point of view of a proponent of Gibson’s view, is the role of the subject in an act of perception? Since Gibson does not address this question explicitly, my response takes the form of a reconstruction or a speculation about the possibilities created by his theory of perception. It is quite clear that the representationalists can easily answer this question by stating that the subject of perception constructs mental representations. By contrast, my solution to this problem, formulated in the spirit of the ecological theory, is as follows. The task of the subject is to acquire the skills of modifying his action in response to the changing perceptual stimuli. However, this does not result in behaviourism. According to my view, perception is understood as a process of continual confrontation between attention and stimuli or problematic situation. Thus a common belief that someone who, for example, looks but does not see (since he lacks active attention), is said not perceive either. But it is equally true that perception cannot be ascribed to someone whose attention is properly fixed, yet who lacks the appropriate behavioural dispositions, e.g. someone who does not know if a ball which he sees can be pushed on an inclined plane—in a sense of procedural knowledge. What is extremely important for a proper understanding of biological externalism, however, is this procedural knowledge (if it is conscious knowledge at all), which is equivalent to being in Nagel’s: *what is it like* state (NAGEL 1974).

I see further a need for making more precise formulation of Gibson’s notion of affordance, which is still considered by many authors to be rather puzzling and pointless. Affordances, i.e. opportunities, which we perceptually recognize in objects belonging to our environment (e.g. an affordance of a tree trunk stump for a squirrel is that the squirrel can climb it), have motivated the idea of direct realism. Truly, different animals, including humans, can recognize different affordances of the same object (a human being can detect in a tree trunk an affordance of the stuff in which he will sculpt

a heart and sign the lovers' initials), but the information about the affordances is contained non-relatively in the perceivable properties of this object (coarse, vertical surface of the tree trunk, which the squirrel can climb and a relatively soft, but solid surface, on which a human being can sculpt).

To summarize: perception is a form of procedural knowledge and thus is clearly connected to action; therefore, I propose a change in thinking about perception—a change from the traditional, representationalist approach to the ecological one.

#### IV. PERCEPTION AND LIFE

I propose now a special understanding of the idea, which I call the embodying of perception, i.e. an idea I connect with the category of life and, as a result, I arrive at a view which may initially seem baffling, namely that perception requires life. A similar attempt was made earlier by Francisco Varela and, currently, by Evan Thomson.

I believe that, contrary to the received opinion, it is better to speak about an embodying of perception, cognition and mind rather than about embodied perception, cognition, and mind. The reason is that the terminology used in the Polish-speaking literature inevitably brings to mind a typology of mental states and thus suggests that embodied perception or cognition is some form of mental state, similar to, say, an insight or subconscious perception. This is misleading, since the proponents of the theory I classify as biological externalism want to emphasize that everything we know about perception or cognition is connected with the fact that the two are activities of bodily subjects. In short, what takes place is not embodied perception, but embodiment of perception. In other words, it means that the concept of perception is inseparable from the concept of body and any attempt to imagine perception without body (unembodied mind) is in vain.

This terminological revision, which might seem no more than a quibble, plays an all-important role in my line of argument. Together with my discussion of Gibson's view, the revision is meant to facilitate a new way of thinking about perception. This time the purpose is to see perceptual activity as one of the basic, spontaneous activities of an organism which undergoes changes in its environment, the activity which changes the organism according to the principle of autopoiesis, to use the term introduced by the authors of neurophenomenology: Humberto Maturana, Francisco Varela, and



Evan Thompson (VARELA 1996; THOMPSON 2007). The autopoietic system can be characterized as follows:

(AS) Autopoietic system: a system organized in such a way that the processes essential to its functioning produce parts necessary for the possibility of the continuity of these very processes.

On the basis of this concept I reconstruct the category of the subject and the behaviour useful in examining the nature of perception. I conclude:

(SA) Elementary form of subjective activity: a living system is active, when its behaviour is guided by internal teleology rather than derivative teleology.

Subjectivity, so understood, exhibits the autonomous functioning of the organism, i.e., self-creation during one's life thanks to the processes of metabolism and internal teleology, i.e. being directed at natural values (relevant to a given organism and its survival). This teleology is not derivative, since it does not result from using a particular conceptual scheme, it counts, rather, as an authentic instance of the self-activity of the organism (VARELA, THOMPSON, & ROSH 1991). It could not, otherwise, be described as intentional, such as Gibson describes it when he says that perception "involves awareness-of instead of just awareness" (GIBSON 1979/1986, 239).

## V. PERCEPTION AND ACTION

I am primarily interested in the experiential aspect of perceptual experience. Perception, at least in its most basic form, must be conscious. Hence we can speak of something akin to perceptual qualia or, simply put, to perceptual awareness. I raise the following question: What could an externalist view about the phenomenon of perceptual awareness amount to? My response appeals to a radical version of biological externalism, the enactive theory formulated by Alva Noë (NOË 2004, 50). I define the notion by means of which Noë expresses an intimate connection between awareness of the content accessible to the subject in perception actually, on the one hand, and potentially on the other. This is the notion of virtual awareness:

(VC) Virtual awareness: The world constitutes for the subject a base of data, which are captured in the act of perception by means of perceptual virtual awareness.

On this account, perceptual awareness is unlike a mechanism operating on precisely determined inner mental pictures, which persist through time. The best analogy for visual awareness seems to be provided by a virtual reality, in which each particular bit of information is present to the user as available but is not currently used. This understanding of awareness fits perfectly with the externalist approach to perceptual experience: to perceive a given object is to capture, by means of the mechanisms of attention, the features of the object which interests us. Moreover, this understanding of perception is anti-representationalist in spirit: perception does not consist in producing the inner copies of perceived objects, but in the possibility of making use of perceived features of the objects.

Additionally, perception, so understood, is not something elitist, so to speak, or reserved only for *Homo sapiens*. Besides highlighting the advantages of externalism about perceptual awareness, I identify, most importantly, some puzzling features of this approach. It is unclear, for instance, exactly how virtual awareness is to be understood. What is more, externalism applied to the phenomenon of awareness can radicalize enactivism (HUTTO & MYIN 2013), which is already extreme in its presuppositions. This in turn would lead to a view, which Noë calls actionism (NOË 2012, 25):

(A) Actionism: Perceptual awareness is a skill of gaining access to the world.

Although the expression “a skill of gaining access” is somewhat infelicitous, it nicely captures an important idea of actionism: namely, perception is a skill, a skill of using the sensorily-given world. On the basis of the identification of perception with action I argue that procedural knowledge which defines perception as a form of action requires no sophisticated forms of cognitive activity, and in this sense is available to animals other than human beings, i.e. it requires only an ability to coordinate sensations (perception) with motion (body movements). This is due to the fact that perceptual awareness means, for me, being a sentient creature, therefore, for the same kind of creature the question “What is it like to be such creature?” is sound.

Perception, accordingly, consists in knowledge about how sensory stimuli change as a result of the movements of the subject, and about the fact that the senso-motorically understood perception comprises the following elements: (1) an ability to perceptually discriminate stimuli and to detect similarities between them; (2) an ability to estimate (recognize and predict), combined with the abilities to plan actions on the basis of the way in which the perceptual features of the objects change depending on the movement.

The former idea, i.e. the idea of the ability to compare, is reminiscent of Gestalt psychology, whereas the idea of the ability to estimate or plan leads in a natural way to the view of perception as action-control advanced in the second half of the 20<sup>th</sup> century by Gibson.

#### VI. SENSORY MODALITY AND NON-VERIDICAL PERCEPTION

In this part of the investigation, I point out an application of biological externalism (a contemporary version of naïve realism) to a particular problem, namely the question of sensory modalities. At its core, there lies the following question: Can the information acquired through different sensory channels (e.g. by sight and touch) be connected and related to each other, or is it mutually exclusive? This problem became known as the Molyneux problem (CHESELDON 1728; CAMPBELL 1996; GALLAGHER 2005; SCHETZ 2009).

I offer a response to the Molyneux question, which satisfies the two most important directives of one approach comprising biological externalism, namely neurophenomenology: (1) it draws on empirical data; (2) it places the notion of experience at the center of attention. I express the results of applying this approach to the problem of sensory modalities by, among other things, the following principles:

- (SR) Stimulation of receptors: the stimuli incoming through the sensory channels from the environment are necessary to shape the ability to perceive.
- (ND) Neuronal development: a properly working perceptual system requires a neural development.

In summary: in cases in which sensory integration was impossible due to a limited neural development, perception will remain modal, i.e. each sensory channel will acquire information in an isolated fashion.

On the basis of an argument offered by John Campbell, that even if perception of, for example, shape has an amodal character—in other words, that perceptual information is available to more than one sensory channel—the possibility still remains open that a recognition of this feature by means of a newly activated sensory channel (for example, in the situation of a previously-blind person suddenly regaining), will be informative for the subject (CAMPBELL 2005, 202). In other words, the identity of information about the same feature, e.g. the same shape, acquired by means of two different

sensory channels, may not be obvious to the perceiving subject. Hence his surprise that the object, which he previously knew only by means of touch, (visually) appears such-and-such.

Adopting Campbell's view, I undertake the task of reformulating the argument proposed by the biological externalists and of applying it to the problem of sensory modalities. Preserving all key assumptions of their view, I identify the mistakes which led to the conclusion about the amodal character of perception. This novel argument culminates in an equally novel conclusion: primarily, although perception usually has an intermodal form, in some "extraordinary" situations, takes on a modal form.

I noticed, moreover, that one of the main themes of the theories comprising biological externalism, namely, the claim about the essential connection between perception and procedural knowledge, needs to be constructed more precisely. Consequently, I offer a way of developing this idea.

I suggest that a good model for procedural knowledge which underlies perceptual activity is provided by simulation, or, more precisely, emulation. In this way we can obtain a system which is dynamic and which flexibly adapts to the information from its environment; additionally, it processes the data already present at the input, whereby as the result of a measurement a signal selection takes place, which in turn results in a certain matrix of information. In an emulation model perception is presented as the process of a constant fitting together and, on the level of such, a matrix of states of inner processes and states of the incoming signal. This model reflects the dynamism of the perceptual system in a way which is very similar to the one proposed by Kevin O'Regan (O'REGAN 2001).

The last part of my paper reflects shortly a search for an "ally" for the theories comprising the approach which I call biological externalism. The task of this ally would be to justify the idea of naïve realism. Ultimately, I appeal to disjunctivism, a view about veridicality (i.e. correspondence), and to non-veridicality (i.e. lack of correspondence) between the content of perceptual experience and reality. The disjunctivists, as the name of their view indicates, appeal to an exclusive disjunction: either the subject perceives or he has experiences of a different kind, even if he is unable to distinguish them from a veridical perceptual experience (HINTON 1967/2009; 1973/2009; McDOWELL 2008; MARTIN 2006; HADDOCK & MACPHERSON 2008). Thus, disjunctivism does not face the problem of the content of illusions and hallucinations—the problem which is sometimes expressed by the question: How is it possible that we see something, for example, which does not really

exist? The representationalist will say that in such cases, one should appeal to a mental representation (an entity with a controversial ontological status), whereas the disjunctivist will point out that in the act of perception it is always the case that an actually existing object that is given rather than its mental replica. Illusions and hallucinations—that is, non-veridical experiences—are not perceptions. They should be explained by appeal to cognitive processes other than to perception (e.g. memory and imagination). On this point disjunctivism and naïve realism join hands.

By showing the connections with respect to the nature of perceptual experience between biological realism and so-called disjunctivism, it becomes clear that biological externalism motivates the idea of naïve realism: disjunctivism is an important and serious view, which many authors simply identify with naïve realism. On the other hand, the idea of disjunctivism can be seen as a way of supplementing biological externalism. With this view perception is seen as a direct apprehension of the properties of an object, while all other experiences, in which the object is absent, constitute a separate kind, the description of which should not appeal in any way to perception.

It seems to me that the biological externalists can use disjunctivism as a very handy tool for organizing experience. The tool in question is provided by an exclusive disjunction, one disjunct of which refers to perceptual experience, the other to non-perceptual experiences, such as illusions and hallucinations. We can then say that a given experience is an instance of perception or that it counts as an instance of non-veridical experience, i.e. something, which can at best be called, with some exaggeration, a quasi-perception. A view which has this idea among its theses can justly be called a form of contemporary naïve realism.

## VII. SUMMARY OF THE RESULTS ACHIEVED

The main results and ideas presented in the paper can be put together as follows:

1. A typology of the senses which should be based on an experiential or mental rather than physiological criterion of division.
2. A description of information in terms of meaning for a specific system and an analysis of different kinds of information according to John Heil.
3. A modest proposal in the debate on the form of mental representations: representation should be understood as procedural knowledge.

4. Influence of the ecological theory of perception (James J. Gibson), together with a novel account of the role of the subject in the act of perception and a reconstruction of the notion of affordances (perceptual opportunities).
5. A description of the fundamental form of the subject's activity as the ability of the system for action guided by an internal teleology and, showing that basically understood consciousness, can be equated with sentience.
6. A presentation of the difficulties faced by externalism about awareness, illustrated with the example of the phenomenon of virtual awareness, a description of the consequences of radical enactivism, i.e. actionism, together with an argument against the view that procedural knowledge requires sophisticated cognitive activity, an elaboration of the notion of sensory-motor knowledge and sentience as a form of consciousness.
7. With respect to the problem of sensory modalities, an inadequacy of the conclusion of the proponents of the biological externalism that perception is, by its nature, amodal, an argument, based on both theoretical analysis and empirical data, for the thesis that modality or amodality of perception depends on the level of development of the neuronal structures responsible for perception, a formulation of the principle of the informativeness of perception: even in amodal perception the experience acquired through the newly activated sensory channels can be informative for the subject.
8. A proposal to treat a mechanism of emulation as a model for perceptual activity.
9. A final idea according to which biological externalism should be understood as a contemporary version of naïve realism. The argument consists in showing that biological externalism presupposes disjunctivism concerning perceptual experience.

#### REFERENCES

- BERMÚDEZ, José Luis (ed.). 2005. *Thought, Reference, and Experience*. Oxford: Clarendon Press.
- BYRNE, Alex, & Heather LOGUE (eds.). 2009. *Disjunctivism: Contemporary Readings*. Cambridge: The MIT Press.
- CHESELDEN, William. 1728. "An Account of Some Observations Made by a Young Gentleman, Who Was Born Blind, or Lost His Sight so Early, That He Had no Remembrance of Ever Having Seen, and Was Couch'd between 13 and 14 Years of Age." *Philosophical Transactions of the Royal Society* vol. 35: 447–50. DOI: <http://dx.doi.org/10.1098/rstl.1727.0038>.
- CAMPBELL, John. 1996. "Molyneux's Question." *Philosophical Issues* vol. 7: 301–18. DOI: <https://doi.org/10.2307/1522914>

- CAMPBELL, John. 2005. "Information Processing, Phenomenal Consciousness, and Molyneux's Question." In José Luis BERMÚDEZ (ed.). *Thought, Reference, and Experience*, 195–320. Oxford: Clarendon Press.
- CLARK, Andy. 2006. "Cognitive Complexity and the Sensorimotor Frontier." *Aristotelian Society. Supplementary Volume* vol. 80, issue 1: 43–65. DOI: <https://doi.org/10.1111/j.1467-8349.2006.00137.x>.
- GODFREY-SMITH, Peter. 2016. *The Octopus, the Sea, and the Deep Origins of Consciousness*. New York: Farrar, Straus and Giroux.
- GALLAGHER, Shaun. 2005. *How the Body Shapes the Mind*. New York: Oxford University Press.
- GIBSON, James J. 1979/1986. *The Ecological Approach to Visual Perception*. London: LEA.
- HADDOCK, Adrian, & Fiona MACPHERSON (eds.). 2008. *Disjunctivism: Perception, Action, Knowledge*. Oxford: Oxford University Press.
- HEIL, John. 1983. *Perception and Cognition*. Berkeley: University of California Press.
- HINTON, J[ohn] M[ichael]. 1967/2009. "Visual Experiences." In Alex BYRNE & Heather LOGUE (eds.). *Disjunctivism: Contemporary Readings*, 1–11. Cambridge: The MIT Press. [Reprinted from: *Mind* vol. 76 (1967): 217–27].
- HINTON, J[ohn] M[ichael]. (1973/2009), "Selections from Experiences." In Alex BYRNE & Heather LOGUE (eds.). *Disjunctivism: Contemporary Readings*, 13–32. Cambridge: The MIT Press. [Reprinted from: J.M. HINTON. *Experiences: An Inquiry into Some Ambiguities*. Oxford: Oxford University Press, 1973].
- HUTTO, Daniel D., & Eric MYIN. 2013. *Radicalizing Enactivism*. Cambridge: The MIT Press.
- NUDDS, Matthew. 2011. "The Senses as Psychological Kinds." In Fiona MACPHERSON (ed.). *The senses: Classical and contemporary philosophical perspectives*, 311–40. Oxford: Oxford University Press.
- MACPHERSON, Fiona (ed.). *The senses: Classical and contemporary philosophical perspectives*. Oxford: Oxford University Press.
- MARTIN, M.G.F. (2006. "On Being Alienated." In Tamar SZABÓ GENDLER and John HAWTHORNE (eds.). *Perceptual Experience*, 354–410. Oxford: Oxford University Press.
- MCDOWELL, John. 2008. "The Disjunctive Conception of Experience as Material for a Transcendental Argument." In Adrian HADDOCK & Fiona MACPHERSON (eds.). *Disjunctivism: Perception, Action, Knowledge*, 376–89. Oxford: Oxford University Press.
- NAGEL, Thomas. 1974. "What Is It Like to Be a Bat?" *The Philosophical Review* vol. 83, no. 4 (October): 435–50. DOI: <https://doi.org/10.2307/2183914>.
- NOË, Alva. 2004. *Action in Perception*. Cambridge: The MIT Press.
- O'REGAN, J. Kevin, & Alva NOË. 2001. "A Sensorimotor Account of Vision and Visual Consciousness." *Behavioral and Brain Sciences* vol. 24: 939–1031.
- SCHETZ, Adriana. 2009. "Widzieć krawędzie, dotykać głębi, czyli współczesne rozważania dotyczące pytania Molyneux." *Studia z Kognitywistyki i Filozofii Umysłu* vol. 3: 55–79.
- SCHETZ, Adriana. 2014. *Biologiczny eksterjalizm w teoriach percepcji*. (Prace z Filozofii i Kognitywistyki). Szczecin: Wydawnictwo Naukowe Uniwersytetu Szczecińskiego.
- SCHETZ, Adriana. 2016. "Non-relational conception of consciousness," *Constructivist Foundations* vol. 11, no. 3: 562–564.
- SHAPIRO, Lawrence. 2011. *Embodied Cognition*. London: Routledge.
- THOMPSON, Evan T. 2007. *Mind in Life: Biology, Phenomenology, and the Science of Mind*. Cambridge: Harvard University Press.
- VARELA, Francisco J. 1996. "Neurophenomenology: A methodological remedy for the hard problem." *Journal of Consciousness Studies* vol. 3, no. 4: 330–49.
- VARELA, Francisco J., Evan T. THOMPSON, & Eleanor ROSCH. 1991. *The Embodied Mind: Cognitive Science and Human Experience*. Cambridge: The MIT Press.

CONSCIOUSNESS AND PERCEPTION  
FROM BIOLOGICAL EXTERNALISM POINT OF VIEW

S u m m a r y

The aim of the analyzes carried out in this paper is to show that within the multitude of theories of perception which center their main presuppositions around the idea of action and embodiment, we can distinguish a body of approaches, which characteristically emphasize the following claims: that it is the living organism that should serve as perceiving subject; that perceptual states are not only a form of action but primarily a form of consciousness; that perceptual information is obtained by perceiving subjects from the environment by means of so-called perceptual invariants (i.e. structural indicators, which allow organisms to recognize such perceptual properties as color, shape, size, intensity of sound, type and direction of smell, tactilely given texture, etc.).

ŚWIADOMOŚĆ I POSTRZEGANIE  
Z PUNKTU WIDZENIA BIOLOGICZNEGO EKSTERNALIZMU

S t r e s z c z e n i e

Celem analiz przeprowadzanych w tym artykule jest wykazanie, że w wielości teorii percepcji, które koncentrują swoje główne założenia wokół idei działania i ucieleśnienia, możemy wyróżnić zbiór podejść, które charakterystycznie podkreślają następujące twierdzenia: że żywy organizm powinien służyć jako podmiot postrzegający; że stany percepcyjne są nie tylko formą działania, ale przede wszystkim formą świadomości; że informację percepcyjną uzyskuje się przez postrzeganie podmiotów ze środowiska za pomocą tzw. niezmienników percepcyjnych (tj. wskaźników strukturalnych, które pozwalają organizmom rozpoznać takie właściwości percepcyjne, jak kolor, kształt, wielkość, natężenie dźwięku, rodzaj i kierunek zapachu, dotykalnie sprawdzalna tekstura itp.).

**Key words:** consciousness; perception; biological externalism; enactivism; experience; sentience; actionism; disjunctivism.

**Słowa kluczowe:** świadomość; postrzeganie; biologiczny ekstermalizm; enaktywizm; doświadczenie; wrażliwość; akcjonizm; dysjunktywizm.

**Information about Author:** Dr. hab. ADRIANA SCHETZ, Prof. at US — University of Szczecin, Institute of Philosophy, Department of Epistemology; address for correspondence — e-mail: [adriana.schetz@gmail.com](mailto:adriana.schetz@gmail.com)