

Revision of Antoni Kępiński's concept of information metabolism

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Summary

Information metabolism is a key model for describing psychiatric life in the works of a Polish psychiatrist, Antoni Kępiński. Due to the significance of Kępiński's writings on the psychiatric environment in Poland, and also its influence on the cultural life, a significant interpretative trend of this concept was subject to a critical analysis, a trend which relies on identifying information metabolism with the so-called biological model. The biological model is a postulate appearing in Kępiński's writings to describe issues concerning psyche in analogy to the somatic structures of an organism, especially the biology of a cell. This fragment of Kępiński's work was the main reason for his subsequent criticism. This article proves that the concept of information metabolism itself does not include the biological model. Eventually, an example has been provided to show the topicality of the system of Kępiński's information metabolism in relation to the concept of somatic markers of Antonio Damasio.

Key words: Kępiński, information metabolism, biological model, Damasio

Introduction

The figure of Antoni Kępiński has an established position in the symbolic sphere of Polish psychiatry [1]. This is reflected in the references to his works in numerous publications, also released in the form of thematic collections [2–4]. At the same time there are many misunderstandings concerning his work; the most numerous seem to concern the key concept of information metabolism. The model of information metabolism forms the basic system for the description of psychological life in Kępiński's concept, yet at the same time it is considered the most controversial. This raises the issue of a comprehensive interpretation of his works. The main cause of this state of affairs lies in rendering Kępiński's marginal idea which refers to the description of psyche based on cellular biology, that is the so-called biological model, as the structural part of information metabolism.

The principle of this paper is to present the basic – original way of understanding of information metabolism and its derivative interpretation, i.e., the biological model. Next is the presentation of the ways of dealing with this subject in literature. The subsequent stage is an argumentation against the aggregation of these two concepts. The conceptual separation of information metabolism from the biological model will allow for the increase of heuristic potential of the work of Kępiński, to that end there is provided an example of the similarities with the theses of a neurobiologist Antonio Damasio.

Information metabolism in the works of Kępiński

Information metabolism was systematically described in *Melancholia (Melancholy)* [5], but it runs through most of the texts by Kępiński, with substantial fragments included in *Psychopatologia nerwic (Psychopathology of Neuroses)* [6] and *Lęk (Fear)* [7]. The model itself is not uniform and there are noticeable inconsistencies among individual ways of its application. It seems that the concept of information metabolism was more of a tool used with a conviction about the ontological importance of its principles rather than a finished psychological or psychiatric theory.

Information metabolism states that the mental life of humans (and also some animals; in certain situations this term is stretched to the whole animated nature) consists in the exchange of information with the environment in a symbolic form. The information exchange forms mental experiences which, according to Kępiński, are subjective, i.e., individual and non-reducible to the physical occurrences, aspects of life (at least at the current stage of scientific development). The basic rules of human functioning in the world (both natural and cultural one) were established through evolution and contain the imperative of personal survival and the survival of the species, put in the so-called biological rules. The first biological rule tells us about the necessity of preserving our own life, the second one about the continuation of a species. Kępiński links two fundamental attitudes to these rules that a subject adopts in relation to the environment called the indicative attitudes: “from” and “towards”.

The “from” attitude is typical of the first biological rule, where the subject acts on a basis of “I’ll destroy you or I shall be destroyed”, and it mainly encompasses situations when a subject satisfies the life’s needs or avoids threats. The “towards” attitude is related to the second biological rule, it defines the relation of closeness and establishing interpersonal contacts. For Kępiński this attitude is the appropriate environment for information metabolism because it is possible to exchange information in it. Both these attitudes are essential in life and the balance between them was metaphorically presented as the dialectics of life and death, or the dialectics of variability and invariability. Kępiński also singled out the “over” attitude, which is a creative realization of one’s own plans, an intentional and particularly human activity. The “over” attitude is linked to the “under” attitude – that is to comply with the order of the environment. It is worthwhile to pay attention to this characteristic motif, often misunderstood in Kępiński’s works, that the “over” attitude is not aspiring to rule the world, but to fulfill oneself in the area of freedom, and it results from the “towards” attitude. The “over” and “under” attitudes also counterbalance each other, i.e., humans in their fulfillments

cannot adopt only the “over” attitude, whose domination can lead to the pathology of power. In psychopathology, the lack of restrictions over the “over” attitude is for Kępiński a trait of schizophrenic psychosis.

Information metabolism functioning according to the biological conditioning is a comprehensive emotional and rational experience, where Kępiński singled out two phases. The first phase of information metabolism is the emotional choice of the directional attitude, either “from” or “towards” in relation to a given object. It happens subconsciously and independently from the subject. The second phase is the rational choice of a specific action – a functional structure, which is the consequence of knowledge, experience, or intellectual abilities, but always with the background of the emotional choice of the first phase.

The biological model

In 1970, a short paper titled *O biologiczny model w myśleniu psychiatrycznym* (*On the Biological Model in Psychiatric Thinking*) was published by Kępiński – it has less than 9 pages in the book edition of his articles *Rytm Życia* (*The Rhythm of Life*) [8]. Most of the text is filled with the ideas about the importance of biological laws, indicative attitudes and self-control systems, presented earlier. At the end of that paper, there is a postulate to attempt presenting the psychological and psychiatric issues through their description within the biological model, that is in analogy to somatic morphological and functional structures of a living organism. According to Kępiński, they are closer to the functioning of the psyche than technical models – which rely on the operating principles of machines. Kępiński's proposal is to take a look at psychopathology through the malfunctioning of a cell.

A cell is controlled by a nucleus where the genetic plan (DNA) is located. Nucleus is interconnected by “an intricate network of tubules and membranes” [8, p. 272] with the cell membrane which forms a border separating the outside and the inside world. The axial symptoms of schizophrenia – autism and split – in this model rely on the pathology of structures analogous to the cell nucleus and cell membrane. The dominating attitude is “from” and a life in “a world of dreams”, what eventually leads to the effacement of the “self” – world border and to the disintegration of the individual order. Pathological oscillation of moods in bipolar disorder corresponds with the disturbance of the work of mitochondria which supply energy to the cell, and the neurotic “inability to «digest» one's life issues” [8, p. 273] resembles the disturbance in the functioning of lysosomes. It should be noted that Kępiński, and subsequent authors, also used the term “biological model” to define every analogy between the somatic and mental phenomena.

Information metabolism in literature

In a review of the published literature on the works of Kępiński, most focus was devoted to the main interpretative trends of the concept of information metabolism, among which prevails treating it as a biological model. What contributed to this was

the initial reception of the works of Kępiński within the few years following his death, mainly an article published in 1975 by Andrzej Kowal in a collection of articles devoted to Kępiński [9]. This text is in principle a summary of the selected facets of Kępiński's thoughts, where the theses of the paper *O biologiczny model w myśleniupsychiatrycznym* (*On the Biological Model in Psychiatric Thinking*) [8] were equally emphasized with the fundamental assumptions of the theory.

Kowal's article imposed the manner of how information metabolism would be understood for most of the subsequent mainstream publications. A distinctive example is the work of Andrzej Jakubik issued in 1981, where he published so far the most extensive analysis of the theoretical principles in the works of Kępiński [10]. Information metabolism is there presented precisely according to Kowal's outline. This description was preceded with an introduction relating Kępiński's model to the theory of systems, and supplied with a commentary: "It [the concept of energy and information metabolism – author's note] quite unnecessarily broadens Kępiński's eclecticism by clearly introducing elements of the naturalistic position [...] which is contrary to the assumptions of the understanding psychiatry, or the axiological psychiatry" [10, p. 365] also: "In the name of freedom of a human being he acted against all the ideologies, and at the same time he created and propagated a model of a utopian ideology. While standing at a position of scientific skepticism regarding the possibilities of understanding human psyche, he warned against the attempts of confining him in the schemata of logical theoretical constructions, yet he did not resist the temptation of his own concept of the world and of humans, the concept of energy and information metabolism" [10, p. 219]. Presentation of the work of his teacher by Jakubik in the above cited book is generally done in an affirmative way that underscores its multi-layered structure and mentions the lack of time to prepare a proper monograph study. However, in the case of information metabolism his opinion is radically negative and the interpretation of this concept was evidently carried out through the prism of the biological model.

After the publication of Jakubik's paper, in the literature regarding Kępiński, this key concept for his anthropological description appears within the strict understanding as a model of psyche constructed in the manner of cellular model. In other cases it is more often signaled than analyzed. The model of information metabolism was employed by Andrzej Kokoszka in the research on the methods of psychotherapy, where it was directly stated that: "Information metabolism is a metaphorical term to describe a model of processing information created by Kępiński which is based on the structures and mechanisms of functioning of a biological cell" [11, p. 71]. Similarly, within the interdisciplinary research on the construction of a mathematical model of information metabolism, it is seen in the context of the biology of a cell [12]. In a subsequent article, Kokoszka et al. signal the difference of descriptions in *Melancholia* (*Melancholy*) and in *O biologiczny model w myśleniu psychiatrycznym* (*On the Biological Model in Psychiatric Thinking*) yet they consequently opt for the "biological" understanding of information metabolism [13]. Eugeniusz Brzezicki, in his preface to Kępiński's brochure *Z psychopatologii życia seksualnego* (*From the Psychopathology of Sexual Life*), also wrote about information metabolism as an analogous structure to the construction of a cell [14]. What is interesting, he did not mention the biological

model in his preface to *Melancholia (Melancholy)* [15]. The perspective of biological model was also taken by Artur Mních [16].

Not all of the authors viewed information metabolism through the prism of the biological model. Józef Maciuszek analyses information metabolism in an extensive study of the works of Kępiński [17] within the context of a general theory of systems. He also deals with the selected constitutive elements of this concept, yet without any references to the cellular model. Also Tadeusz Struzik, while analyzing the concept of information metabolism in the context of information theory, does not treat it as a biological model [18].

The misunderstandings regarding this subject are linked especially to Kowal's article [9] and its influence on the way of thinking about information metabolism. One example could be objections, cited by Maciuszek, referring to the oversimplification of psyche in the cellular model [17]. These objections originate from the criticism done by Jakubik based on the narration by Kowal. Therefore they refer to the entire concept of information metabolism, not just to the elements of the biological model. Nevertheless, Kokoszka et al. claim that Kowal's text "shows the concept of information metabolism from a wide, interdisciplinary perspective, and shows its author as a philosopher who raises central metaphysical and epistemological issues in his concept" [13, p. 703–704]. It is difficult to agree with this opinion because Kowal's work is a compilation of themes taken from Kępiński's works, what is actually demonstrated by their literal copying or only with a slight stylistic modification.

Discussion

The revision of the concept of information metabolism is mainly aimed at the demarcation of its basic elements from the secondary construct which is the so-called biological model. The description of mental life through the morphology and functioning of an eukaryotic cell does not find proper justification in the main texts referring to information metabolism. In the most extensive presentation of this issue, which is a substantial part of *Melancholia (Melancholy)* [5], the information metabolism was located first of all within the framework of natural biological rhythms – sleep and wakefulness, and also the rhythm of personal development presented by the metaphor of seasons. Kępiński linked the endogenous rhythm of life dynamics, experienced as mood, with the basic orientation attitudes "towards" and "from" which are feelings in subjective perception. The mood and the feelings form the flavor which is the basis of the first – emotional phase of information metabolism. Based on this flavor rational decisions of the second phase are made. The course of information metabolism presented in *Melancholia (Melancholy)* emphasizes the importance of emotions in specific choices which refer to the relation between the subject and the outside world, which were called the models of the reality.

The description of the information metabolism looks similar in *Psychopatologie nerwic (Psychopathologies of Neuroses)* [6]. In comparison with *Melancholie (Melancholies)* there are differences in highlighting individual issues, e.g., neuronal correlates of information metabolism or genesis of the self-control system. In the deliberations

included in *Lęk (Fear)* [7], where the information metabolism is distinctly present throughout substantial fragments of the text, Kępiński dealt with, among others, the role of symbolical operations in the functioning of information metabolism. The symbolic sphere, i.e., the “spirit” (written by Kępiński in quotation marks) was juxtaposed with the energy metabolism. The “spirit” is communal, timeless and unrestricted, and the body is closed in its own structure, singular and destructible.

In individual parts, Kępiński put an emphasis on various aspects of information metabolism, that is the meaning of emotions, symbols and the dominance of “towards” attitude. While presenting his concept of information metabolism, the reference to the cellular model, shown as a holistic structure presenting mental processes, is nowhere to be found. Therefore, one cannot accept the assumption that the author during the formulation of the foundations of his concept was structuring the way of thinking about the exchange of information between an individual and the environment in analogy to the biology of a cell.

Kępiński, however, called for the “subjective side of the phenomena of life to be examined through the prism of fundamental biological laws. This way it is easier for certain analogies to be emphasized. These analogies get blurred during the exclusive concentration on mental phenomena, and the creation of classifications which are not founded on unbiased biology” [5, p. 175]. He compared the mental phenomena with somatic ones, most often on various levels of organization of the nervous system. The suggestions, which were later found in the biological model, could also be encountered. Kępiński wrote about the mental “indigestion” and about the changes in the rhythm of the life dynamics associated with the cyclical work of mitochondria [5]. The nearest to the assumptions of the biological model is the description of the explosion of psychosis included in *Schizofrenia (Schizophrenia)*, which shows the situation when the structure of “self” and the “self”–world border are crushed [19]. This situation was presented with the example of a pathological cellular nucleus and a membrane. These examples, though, do not form the comprehensive system of the biological model.

What is then the status of this proposition in the works of Kępiński? The answer to this question is relatively easy and the author expressed it himself when he wrote: “Probably many a reader will find the above concept of the biological model, especially reduced to a single cell, absurd. Nonetheless, in psychology and psychiatry, it may be justified to introduce the biological models, which are inherently closer to the psychological reality, in place of the technical models” [8, p. 274]. The biological model is therefore an attempt at a new way of looking, a contribution to the concept of information metabolism which had already been developed back then, a thought experiment in the psychopathological theory. As the aforementioned quotation proves, Kępiński realized that such a way of describing the psyche is problematic. However, in his research on the psychophysical problem, which permeates the concept of information metabolism, the biological model was aimed to call attention to the need for a different way of describing biological phenomena than determining them with the language of technology. It refers to the general theory of systems with the postulate of isomorphism, that is: “the occurrence of similar systemic laws in various sciences”

[20, p. 113]. Due to the fact that a human organism is built out of cells, the biological model based on isomorphism between cytobiology and neurobiology should, according to Kępiński's intentions, represent the nervous functions and their correlates in the form of subjective experiences better than the technical models – ones that are based on the structure of machines. However, such a simplified cellular biology resembles a simple technical device itself.

Information metabolism understood through the prism of the biological model caused harm to Kępiński's work. Kokoszka noticed that "very critical evaluation of this concept by Jakubik dissuaded most of the Polish psychiatrists from developing it" [11, p. 71]. An example of such accrued misunderstandings is the work of Krzysztof Murawski [21] who, while analyzing the concept of conscience in Kępiński's works, refers to the biological model and points to the center of organization of psyche – the nucleus, without specifying more precisely what this structure is. The second element is the intrapsychic "nucleus of life", which would control the processes of building (identified with the good) and breakdown (identified with the evil). The balance of these processes has an ethical dimension. This disquisition cannot be accepted because Kępiński did not write about the "nucleus of life" as a part of the psyche. Quite the opposite, for him the metaphorical term "nucleus of life" was a synonym of life in the flesh, somatic life, that is first of all the energetic metabolisms [7].

The importance of the concept of information metabolism, but also the issues concerning its use, were noticed by Jacek Bomba when he wrote: "It [the concept of information metabolism – author's note] was later critically evaluated. From the position of the methodology of sciences, the basic objection against this concept is the difficulty with compiling on its basis such methods of measurement to check it empirically. [...] It is, however, an objection that reveals an ignorance about the nature of the concept of information metabolism. Kępiński's concept is not a scientific theory. It should not be evaluated according to the criteria typical of such theories. [...] It does organize – with a great success – fragments of knowledge collected by neurophysiology, psychology, social and medical sciences. It also allows one to get closer to the complexity of what human and his or her suffering is" [22, p. 345–346].

This article is not meant to evaluate the research that has been done on the practical implementation of the concept of information metabolism as understood within the biological model (such an evaluation was done by Kokoszka [13, 23]). However, after separating the biological model from information metabolism this anthropological model, which is key in the work of Kępiński, regains its explanatory potential through its simplicity, interdisciplinarity, reliably executed phenomenological description of existential moments of a human, as well as deep rooting in the psychiatry. One of the possibilities to use Kępiński's concept in cognitive science is its reference to the important trends in the works of a neurobiologist Antonio Damasio [24, 25].

While studying the neuronal mechanisms of decision making, Damasio drew conclusions similar to Kępiński's results. According to the Portuguese researcher, the emotional state of an organism, which includes the perception of one's body in response to the intellectually represented stimulus, is key to the decision-making process. Emotions have a cognitive character. They have been divided into primary (inherent),

dependent on the work of the limbic system, and secondary (learnt), which play out in the prefrontal cortex, and also into the neuronal structures typical of the primordial emotions. Damasio also singled out feelings which are representing the state of the body in the neuronal reproductions called the maps of the body. The second aspect of the feelings is their connection with the mental representation of an object which causes a given feeling. For Damasio the essence of feelings is included in monitoring of the state of the body on the basis of its specific meta-presentation of the mind – “emotions play out in the theater of the body, feelings play out in the theater of the mind” [25, p. 28]. Feelings are, in a substantial part, derivative of emotional states, yet not all of them. The background feelings were also singled out. They are a general information about the state of the body. They appear both on the neuronal and the biochemical background. They are perceived as a state similar to mood (but, according to Damasio, they last longer than the mood).

Also for Kępiński the basis for decision making is the mood and emotional flavor of the first phase of information metabolism. The flavor consists of the state of the organism called the life dynamics, subjectively experienced as the mood. The second ingredient is emotions – which Kępiński treated synonymously with feelings – which are the psychosomatic expressions of an adopted orientation attitude. A further analogy between these descriptions is clearly emphasized by the evolutionary origin of emotional processes. Drives and instincts singled out by Damasio which condition the basic forms of behavior are similar to the biological rules. Lastly, the somatic markers are analogous to the choice of orientation attitudes; markers which are “special kinds of feelings generated on the basis of secondary emotions. These emotions and feelings have been linked in the process of learning with the predictable future results of certain scenarios of events. When a negative somatic marker becomes juxtaposed with a specific future consequence of a given action, it becomes a wake-up call. When, however, such a juxtaposition is made with a positive marker, it becomes an incentive stimulus” [24, p. 197]. In the general outline, Damasio’s conclusions, though often derived from different assumptions, have many convergent points with Kępiński’s theses of information metabolism.

Obviously, Damasio’s concept is not a straightforward translation of Kępiński’s model. Only some selected common points which aim to illustrate the validity of Kępiński’s work were presented. This subject requires a separate study. Cognitive science, as presented by Damasio, is not the only research perspective of Kępiński’s works. Nevertheless the new researches have a chance of becoming much more fruitful once we resign from the proposal of the biological model in understanding the information metabolism.

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