

A report on the conference “Ecosemiotic Paradigm for Nature and Culture”

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July 2018 was significant in the activities of the Silesian Botanical Garden in Mikołów because of an unusual event on the worldwide scale: the first international summer school “Ecosemiotic Paradigm for Nature and Culture: Transdisciplinary Explorations in the Cybernetics of Learning, Adapting, Understanding and Knowing” that took place there from Monday, 9 July to Thursday, 12 July. The event was organized by the Faculty of English of the Adam Mickiewicz University in Poznań, the Silesian Botanical Garden in Mikołów, together with the Polish Academy of Sciences Botanical Garden Centre for Biological Diversity Conservation in Powsin, Poland. The event took place in cooperation with and under the auspices of the Polish Academy of Sciences and the International Communicology Institute, Washington, DC, USA, at one of the largest localities for education, recreation and relaxation, in the tourist region of the Silesian Metropolis Agglomeration.

The idea of the summer school was the result of two preparatory conventions organized earlier: the First Polish Bateson Symposium held in Dąbrowa Górnicza, Poland, 13–15 May 2016, as well as the Second Polish Bateson Symposium held in Mikołów, 1–4 June 2017. The event was originally planned as a Batesonian Festival in Poland titled “Explorations in the Ecology of Mind and Nature” and was to deal with the challenges for the humanities, Gregory Bateson in Poland, as well as social addictions, immigration, ecosystemic thinking, education, mind and care, health, psychotherapy and medicine, communication and double bind, metalogue and epistemology. What is more, the festival topics would concentrate around the idea of living-systems development in the realm of plants, animals, and humans engaged in species-specific cognizing activities and meaningful relationships within and with their natural and cultural environments.

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Due to the interpretative variances and agreements among potential co-organizers, the leitmotif of this meeting was eventually extended to the theme of a summer school, “Ecosemiotic Paradigm for Nature and Culture”. This event was to address a wide audience, not solely a limited group of elite specialists working in the domain of Batesonian studies on the international forum. Under the new title, negotiated with the authorities of two Botanical Gardens in Poland, those in Silesia and Masovia, the topic of a future interest area inscribed itself into investigative domains of biological-evolutional psychology, semiotic phenomenology of human communication, educational sociology, as well as cultural anthropology. As such, its content was meant to merge two interrelated mind/brain- and actuality/virtuality-oriented research traditions, namely, epistemology as a metascientific theory of knowledge or psychophysiological theory of knowing, and ecology as a theory of environmental embedding of organismic and social systems.

The key role was played by the initiators of this school – Richard L. Lanigan, Director of International Communicology Institute (ICI) from Washington, DC, and Ronald C. Arnett, Head of the Department of Communication and Rhetorical Studies, Duquesne University in Pittsburgh, Pennsylvania, USA, in the Scientific Committee; as well as Paweł Kojs, Director of the Silesian Botanical Garden in Mikołów and the Polish Academy of Sciences Botanical Garden: Centre for Biological Diversity Conservation in Powsin (SIBG & PAS BG-CBDC) and Zdzisław Wąsik from the Faculty of English, Adam Mickiewicz University in Poznań in the Organizing Committee; and Elżbieta Magdalena Wąsik from the Faculty of English, Adam Mickiewicz University in Poznań, in the Programme Committee. Two principal organizers of this school were also awarded with diplomas and medals of the International Communicology Institute: Zdzisław Wąsik was nominated as Laureate Fellow, based on the record of leading achievements in the area of directing and conducting scientific research. The second distinction was granted to Dr. Paweł Kojs, Director of SIBG & PAS BG-CBDC.

Among the thirty-five active participants, representing Brazil, Denmark, Estonia, Germany, Italy, Lithuania, Poland, Romania, Russia, Turkey, United States, there was a group of twenty-seven, who not only delivered their lectures and papers, but also took part in animated discussions. In order to have plenary lectures which would be thematically connected with the leitmotif of the summer school, the organizers had invited Priscila Borges from the Department of Audiovisual and Advertising, Faculty of Communication at the University of Brasilia, Brazil, and Søren Brier from the Department of Management, Society and Communication at the Copenhagen Business School in Denmark as plenary speakers.

In her paper, Priscila Borges discussed the possibility of a practical application of Charles Sanders Peirce’s theory of mind to human beliefs surfing through social

media. She described Peirce reasoning as an inquiry process that goes from doubt to belief, coming close to his definition of 'mind', which is a system of beliefs. She underlined that mind is something that acts to achieve a certain purpose. As she claimed, interpreting Peirce's perspective, it is not only the attribution of mind to institutions and social groups that might be relevant, but the development of the collective mind depends on the extension of individual minds which have a bearing towards knowledge and truth. A very interesting remark made in this lecture suggested that Internet media might change the habits of society seen as a complex mind institution composed of individuals acting in a certain way to achieve certain beliefs with regard to knowledge and truth.

The second plenary lecture "Making differences significant: Cybersemiotics' non-dual transdisciplinary framework of nature, mind and culture" was delivered by Søren Brier; it was a theoretical report on the results of the author's habilitation dissertation. What dominated in this report was a transdisciplinary view of cognition and communication as an info-computational paradigm, which relied on a statistical objective concept of information in combination with the general idea of a computational process. This view, inclusive of an ecological approach, constitutes a mechanization of mind, leaving out important aspects of the lived reality of human embodied-conscious-experience and meaning. In the author's conception, cybersemiotics might integrate two major approaches to the process of semiosis, which may be able to produce signification, drawing inspiration from objective idealistic philosophy as well as from the modern science's dynamic theories, such as thermodynamics, where mind and matter are in fact two ends of the same continuum, making a connection between science and spirituality.

There were also seven thematic groups of papers divided into sessions. Session 1 included talks delivered by Ronald C. Arnett (Duquesne University in Pittsburgh, Pennsylvania), William B. Gomes (Federal University of Rio Grande do Sul, Porto Alegre, Brazil) and Elżbieta Magdalena Wąsik (Adam Mickiewicz University in Poznań). In his paper "Articulating relational and existential ground for ecosemiotics: David Hume (1711–1776)", Ronald C. Arnett framed David Hume's project within the domain of ecosemiotics. He claimed that the ecological significance of Hume's work rested on his rejection of an unregulated commitment to reason, which launched a rationale for imperial imposition. As he acclaimed, the genius of this project, which announced a creative dwelling nurturing human meaning, was that Hume rendered an ecosemiological union of understanding, relationship, sentiment, and existence.

As a psychologist himself, William B. Gomes, undertook in his paper "Semiotic phenomenology in search of nature and culture: Toward fruitful perspectives on human understanding" an ambitious task of highlighting the relationship between

nature and culture as mobilizing the attention of researchers who concentrate on existential paradoxes of contiguity and opposition. In Gomes' view, contiguity prevails in reality due to the power of culture to manage nature in the face of threats arising from nature to culture, and oppositions stimulate human actions to offer new possibilities and resources for developing multiplicities of worlds by the application of signs. While phenomenology promotes cognitive reconciliation between culture and nature through dialogic channels of intersubjectivity and embodiment, semiotics unveils or uncovers a naturalized culture and an acculturated nature through sign-and-meaning-related terms. Thus, semiotic phenomenology should be accepted as a research method functioning in a dialogic channel between nature and culture and as a fruitful perspective for explaining intra- or interpersonal relations.

The author of the third paper, "Patterns of self-sustainment in societal systems: Towards a cybernetic view of cultures and civilizations", Elżbieta Magdalena Wąsik proposed to discuss several interrelated factors responsible for self-sustainment of civilizations as complex self-regulating societal-cultural systems. She referred to the concept of 'pattern', borrowed from biology and adjusted for a cybernetic view of mind connecting every cognizable object with a learning subject. She spoke about the civilizational patterns as detected by historians and political scientists explaining forms of government and collective life in human communities that depend on environmental conditioning and influence the behaviour of individuals and groups. Ultimately, she argued that knowledge about these cultural and civilizational patterns might be indispensable to coordinate and to steer the functioning of present-day multicultural societies.

Session 2 assembled presentations devoted to the topics of foreign language teaching, by Katarzyna Kobel (Philological School of Higher Education in Wrocław, Poland), Katarzyna Nosidlak (Pedagogical University of Cracow, Poland), and Marcin Telidecki (Philological School of Higher Education in Wrocław, Poland).

Delivering her paper on "Axiological modelling of learners in the national educational systems: On the basis of Spanish, English and Polish legislative acts", Katarzyna Kobel suggested considering the education systems of nation states as one of the means of controlling and modelling the future structures of their societies. The investigative perspective of the study was the question of an axiological modelling of learners through teaching practices resulting from the choice of cultural values based on the distinction between what is right and wrong being relevant to the functioning of an individual citizen in a society. The presentation observed a number of selected legislative acts of England, Spain and Poland aiming to explore how these particular countries approach the issue of transmitting the projected values at the normative level.

Katarzyna Nosidlak demonstrated in her talk “Discursive modelling of foreign-language learners as a personality-traits system: On the reflections of European and Polish qualification frames in the university curricula” the results of her study aiming at discovering which personality traits of the university student are promoted in the pedagogical discourse. Her object of investigation, encompassing the European qualifications frameworks applied to tertiary education in Poland, constituted a collection of trait-descriptive adjectives grouped into six categories (‘intercultural’, ‘adaptive’, ‘partnership’, ‘learning’, ‘self-image’ and ‘morality’).

The focus of Marcin Telidecki’s study, entitled as “Learning socially acceptable pronunciation as adapting to communicative requirements: The role of environmental factors in the motivation of acquiring Standard English by foreign language speakers in America”, was placed on the importance of pronunciation of adult English-as-a-second-language learners in America on their path to making themselves successfully understood. It inquired how significant the acquisition of pronunciation is in the learners’ personal and social lives. The study was conducted among immigrants learning English on the basis of a questionnaire aiming to find out their feelings, opinions and reflections about pronunciation acquisition. The results of school learning and the questionnaire shed light on the possibility of achieving a better pronunciation for communicative purposes. As the author stated, ultimate success in pronunciation rested on the level of willingness, and the amount of effort the learner puts into the acquisition process. Correct articulation was also seen as being accountable for interpersonal intelligibility, responsible for conveying the meaning of exchanged messages without causing unnecessary confusion in understanding.

Session 3 featured papers of participants coming from four different places: Sari Helkala-Koivisto (University of Helsinki, Finland), Igor Klyukanov (Eastern Washington University, USA), Giuseppe Maiorano (Tuscia University, Italy), Jason Mario Dydynski (University of Tartu, Estonia). Even though their papers were not thematically interconnected, they had some keywords in common, namely ‘modelling systems’, ‘the world’, ‘reality’ and ‘communication’.

In her paper “Music as a modelling system of possible worlds: Cultural literacy between autistic mind and reality”, Sari Helkala-Koivisto inquired about the following: What kind of literacy people have to find while meeting a possible world of autism? How do we meet non-verbal interplay as a part of reality in possible worlds? Her paper posed a number of philosophical questions and formulated some fundamental statements. Helkala-Koivisto’s presentation analysed whether music as a modelling system between the sensory and functional abilities and the living environment within autism culture might be matched with the ability to create a possible world.

Igor Klyukanov's paper "Prolegomena to ecocommunicology" related to the concept of 'the world', aiming at developing a holistic approach to communication, and was more theoretically inclined. The speaker noticed that ecology is usually mentioned as only one of the disciplines dealing with human discourse. Accordingly, Klyukanov proposed to distinguish two fundamental aspects of ecocommunicology, the ontological and the epistemological. The first aspect pertains to the ecology of communication as the "dwelling place" of humans, thus focusing on the universal manner of their being in the world with intrapersonal, interpersonal, group, or intergroup relationships, and on all manifestations of their embodied consciousness, including speech, discourse, and text. As to the second aspect, what is housed within the domain of ecocommunicology might represent various human, social, and natural scientific disciplines, which include such areas of inquiry as ecolinguistics, ecological communication, or media ecology.

The motivated or arbitrary construction of the world beyond words was the subject matter of the inquiry made in the paper of Giuseppe Maiorano "From environmental sounds to early phonemes: How human oral language developed from the imitation of natural noises and animal calls". This paper departed from the claim that understanding linguistic and cognitive features of modern humans should entail clearing up current biases and misunderstandings, such as the principle of *arbitrariness* of linguistic signs, and the frequent misuse of terms such as 'communication', 'language', 'sound-symbolism'. Thus, he argued that a long-lasting process, which started from naturally *motivated* imitations of environmental sounds, resulted in *conventional* literary products of modern times, in which archaic iconic characters could still be noticed in contemporary human speaking and thinking. In the concluding statements, the author of the paper provided several examples of how ecosystemic resources left clues in the vocabularies of many languages.

In his paper "Plush polar bears and slimy snakes: The role of artificial animals in our perception of biological species", Jason Mario Dydynski examined the mutual intersection between the multi-sensuality of corporeal observation and the multimodality of mental interpretation. At the end of his presentation, the author emphasized the significance of experiential phenomena for the ecosemiotic paradigm, showing the potential merging of human misappropriation of artificial and natural objects.

Session 4 consisted of three papers authored by Alin Olteanu (Kaunas University of Technology, Kaunas, Lithuania), Dorota Juźwin (Philological School of Higher Education in Wrocław, Poland), and Katarzyna Kubaszewska (Philological School of Higher Education in Wrocław, Poland). The paper of Alin Olteanu (which was sent in due to a last-moment cancelled flight) "Educational philosophy

for postmodernity: Ecosemiotics as a theory of learning" evoked notable interest and animated discussion. This paper argued that, by underpinning a construal of learning as semiotic scaffolding, ecosemiotics itself forms a theory of learning. It aligned (natural) adaptation and (cultural) learning as coextensive phenomena, dismissing (post-)Cartesian dualist clauses of modern educational theory and philosophy. In the author's view, ecosemiotics might be understood as both a branch of biosemiotics and a branch of cultural semiotics with regard to ecological conditioning of a natural and cultural character. In this manner, according to the author an ecosemiotic approach should preview the way in which humans (or any other species) construe learning and how this correspondingly impacts on their habitat. Assuming that "to learn is to develop semiotic scaffoldings by use of semiotic resources", Olteanu postulated further research to explore this hypothesis in contrast to modern educational philosophy and put forward some curricular uses of ecosemiotics.

The primary aim of Dorota Juźwin's paper, "Exploring cyber-ecosystems: Learning and interaction in online courses", was an analysis of studying environments created by the implementation of e-learning in tertiary education. As she noticed, contemporary solutions, acknowledged by universities all over the world, do not only allow the use of new teaching techniques and/or learning strategies, which obstructs the development of a unique online ecosystem in which lecturers and students (do not) meet and (do not) interact. Taking into account time-relatedness, the author of the paper distinguished two types of courses: synchronous (taught in real time), and asynchronous (with no real-time interaction). Accordingly, the paper discussed two different courses: a hybrid grammar course in which 50% of the instruction took place in a traditional classroom and an online culture and history course in which lecturers and learners did not see each other until the day of the exam. The latter course was compared to one taking place in a typical classroom environment.

In her paper on "Testing the state of knowledge or the process of knowing? On static and dynamic dimensions of applied epistemology in glottodidactics" Katarzyna Kubaszewska spoke about various types of testing which are used in glottodidactics. The topic of her discussion was testing applied epistemology as a tool by educators in the evaluation, assessment or measurement of the state of knowledge acquired by learners and the process they go through in education. The investigative perspective as theory of knowledge was applied to its two dimensions, namely to static and dynamic epistemologies of acquiring or cognizing subjects. The first dimension of such an applied epistemology referred to a metascientific status of knowledge and the second to the psychophysiological dispositions of a knower. Metascientific epistemology was understood as a set of investigative

perspectives that a knowing subject has at his/her disposal for approaching the reality investigated. The psychophysiological epistemology, in turn, was exhibited through a creative and critical approximation of the knowledge about the object of sensory perception and intellectual apprehension. Conclusively, investigative materials were presented based on data collected from a number of primary school students of English who attended language schools, as well as from teachers of English as a foreign language.

Session 5 contained three papers of applied research in the domain of culture and nature that were given by Joanna Boguska-Kawałek, owner of the Language Studies School “Akcent” in Tarnowo Podgórne (Poland), Katarzyna Gęborys, lecturer at the WSB University in Wrocław and the Philological School of Higher Education in Wrocław (Poland), and Molina Klingler, studying at the Julius-Maximilians-Universität in Würzburg, Germany.

The material investigated in the paper “Patterns of creativity in avant-garde manifestos: Challenging innovations or breaking conventions in language and culture” by Boguska-Kawałek consisted in manifestos of the avant-garde movement from the turn of the 20th century, which projected the activity of the artists involved in terms of conceptual innovativeness or experimental creativity with the intention to trespass or break the boundaries of past legacy and conventions in art. The texts of these manifestos, as a specific journalistic genre of literary discourse, were investigated with regard to how they introduce new principles of creativity and affect the artistic tastes and attitudes of their addressees in a traditionally oriented society. Creativity was considered as a form of self-expression and self-realization, due to both its significance for learning and teaching and its usefulness in various spheres of human life, and as a prerequisite for the adaptation and survival of individuals, communities, and the whole of humankind. To uncover the patterns of creativity, Boguska-Kawałek’s study looked for modelling constellations of co-concurrent values exposed by creative individuals. Such values were revealed with the use of particular forms of expression or a certain rhetoric of argumentation by way of how creative individuals promoted originality and brought about changes in the sensitivity of art recipients from the perspective of interest groups considered as avant-garde.

The topic of Katarzyna Gęborys’ presentation “Deontic modality in the discourse of law as a construction of possible world(s): Modelling the social systems of obligations or permissions in the reality of everyday life through legal acts and provisions” belonged to the investigative domain of transdisciplinary studies, such as linguistics, philosophy, logic, law, and communicology. What detached the research areas, at the crosswords of philosophy and logic, was a boundary between the semantics of possible worlds or the phenomenology of concrete

reality, which exists independently of cognition and inferred reality experienced through abstracting activities of cognizing subjects. The aim of the paper was to examine the extratextual world, as created by modalities of legal texts and text-processing activities in the discourse of law, normative acts, provisions, decrees, and the like, prescribing the possible worlds of social obligations, permissions, commandments, directives, restrictions or penitentiary prohibitions, among other systems modelling human behaviour, within the framework of communication theory and linguistic pragmatics.

The paper “Biosemiotics as natural poetry: Cells and signs in Christian Bök’s *The Xenotext*” by Molina Klingler, aimed at providing a close reading of Book 1 of *The Xenotext* (2015) by the contemporary Canadian poet, embedded in a discussion on biosemiotics and material ecocriticism in allusion to Jesper Hoffmeyer’s claim that “the basic unit of life is the sign, not the molecule”. Considered as the first work of “living poetry” in the world, *The Xenotext* (2015) builds a bridge between art, science, and signs. It is, literally, experimental poetry, and the cells of a life form turned into “a machine for writing a poem”. As far as Bök “translated” a sonnet into a gene and implemented it in an *E. Coli* bacterium which in turn encodes yet another sonnet, his ongoing poetry project offers space for an exploration of natural and cultural processes of semiosis that question epistemological and ontological frameworks and the complex relation between metaphor and materiality. As the author of the paper claimed from a literary and cultural studies perspective, Bök’s example of experimental poetry not only contests the premises of literature and art seen as mere mimesis of nature and life itself – it also marks a transition from the possibility of reading and interpreting DNA as poetry to an understanding that DNA is poetry.

Session 6 featured papers that were thematically variegated, although related to particular aspects of the Summer School’s topic. These were delivered by Józef Zaprucki (the Karkonosze College in Jelenia Góra, Poland), Murat Gezer, Çiğdem Selçukcan Erol, Nebahat Akgün Comak and Sevinç Gülseçen from İstanbul University and Galatasaray University, Turkey, Vasfiye Arslan, Çiğdem Selçukcan Erol and Sevinç Gülseçen from İstanbul University, Turkey, as well as Leonid Tchertov from the St.Petersburg Art School in Russia.

Presenting his paper, “The textual chronotope as an ecosemiotic system: On the situatedness of intercultural discourse between a writer’s literary work and its readership”, Józef Zaprucki pursued the ecosemiotic paradigm for nature and culture in selected novels by Silesian writers which were written before WWII and vividly depicted the temporality and spatiality of Silesia, the former German province which is today one of the Polish Western Voivodships. This paper aimed at elaborating a conceptual-methodological template for analysing the processes

occurring within the intercultural discourse between a Silesian author from the German past Fedor Sommer and his contemporary readership on the basis of the novel *The Iron Collar* (1911). The notion of the textual chronotope as the spatiotemporal frame of a literary work was borrowed from Mikhail Bakhtin in order to provide the image of a fictitious world beyond words creating a basis for an interaction between historical encodings and contemporary decodings of artistically expressed means and forms of communication. This interaction was interpreted in light of the so-called “micro-reception” of literary heritage, with the assumption that some books of the former German Silesian writings were usually read by a very small group of Polish Silesian readers, having contributed to an “intercultural talk” which also entailed the understanding of the sources of civilizational clashes occurring between the communities depicted in the literary work.

Written collectively by Murat Gezer, Çiğdem Selçukcan Erol, Nebahat Akgün Comak and Sevinç Gülseçen, the paper “Communication and double bind: Exploring the technology-vs.-ecology dilemmas” dealt with ethical dilemmas faced by people in contemporary Turkey as to whether to favour the expansion of technology or to conserve the unpolluted environment (ecology of nature), i.e., to stop using technological tools, especially smartphones, laptops or palm computers for the sake of taking care of the environment. Accordingly, this paper employed the ‘double-bind’ conception in relation to the ‘logical types theory’, having submitted the results of research conducted among representatives of younger generations who have agreed to take a stand regarding the technology-vs-ecology dilemmas characterizing the civilizational progress of modern societies.

Vasfiye Arslan, in collaboration with Çiğdem Selçukcan Erol and Sevinç Gülseçen, presented a paper on “Positioning of emoji in the context of ecosemiotics: A meaning-related inquiry conducted among university students”. In this paper, ‘emoji’ in their pictographic function were distinguished from ‘emoticons’, a portmanteau from ‘emotional icons’ used in the role of punctuation marks, letters or numerals in texts. Since both emoji and emoticons occur in contemporary visual language of the Internet-digital-galaxy times, they may become merged occasionally. The most common forms of emoji are smiley faces, including female, male and child typologies, general objects, plants, animals, foods, weather patterns, geographical features, etc. They display a variety of meanings. These minuscule pictures of the virtual world may also perform important functions of creating an awareness pertaining to global issues. In the study of Arslan and her co-authors, a questionnaire was conducted among the students of Istanbul University between the ages of 18 and 21, with the aim to exhibit the positioning of emoji in the context of ecosemiotics. The intention of this study was to investigate how students define and understand emoji.

Leonid Tchertov’s paper “‘Animal symbolicum’ in the natural and cultural semiospheres” highlighted the species-specific ability of humans to function simultaneously in two semiospheres: one of conventional signs and symbols created by themselves in culture, and another of natural signals and indexes available to organisms in nature. Both these semiospheres were described as the subject matter of anthroposemiotics and biosemiotics, semiotics of culture and semiotics of nature, respectively. As the author of the paper noted, their interaction should be included in the domain studied by human ecosemiotics, as far as natural codes compete with systems of cultural signs influencing the people in their creation of complex artificial texts.

Session 7 brought together three participants, Adam Skibiński (Szczecin University, Szczecin, Poland), David Oldroyd (the Silesian Botanical Garden in Mikołów, Poland), and Zdzisław Wąsik (Adam Mickiewicz University in Poznań, Poland).

Adam Skibiński posed, in his paper, “On human Umwelt or why need anthroposemiotics”, a question which he tried to answer in his research, namely “*What makes us human?*”. He claimed that while science should deserve its name, currently it could not be anything but a meta-science, in the scope of which scientists are engaged in activities of auto-reflection, particularly concerning the praxis of methodology or, in general, the choice of epistemology. In Skibiński’s opinion, one of the crucial reflections of the metascientific kind should be answering the question about the interdependencies between various branches of sign-and-meaning-related studies and anthroposemiotics dealing, *inter alia*, with the history of humankind in order to evaluate the impact of culture upon nature.

In his paper “Redefining development in the anthropocene: Dispelling anthropocentric delusions of the ‘machine world’ and ‘consumer society’”, David Oldroyd, pointed out a particular risk which the Anthropocene Epoch with its social and economic development brings, as the geological driving force is changing the natural systems of the entire planet. What the Natural World urgently needs, in Oldroyd’s opinion, would be the redefining of Artificial Intelligence to diminish human impact. He claimed that ‘Development as expansion’ (growth ethic) must be replaced by ‘development of adaptive stability and resilience’ (sufficiency ethic). In Oldroyd’s vision, the anthropogenic global warming, destabilizing global financial systems and several other existential threats, should suggest an imminent breakdown of socio-ecological systems, where ecosemiotics could contribute to redefining the meaning of development as the maladaptive connection between the ‘Machine World’ and its ecological ‘Natural World’.

Against the background of the distinction between mathesis as the science of ordering and mathetics as the science of learning, Zdzisław Wąsik’s paper “One world or a multiplicity of worlds beyond signs? Critical epistemology in the

semio-mathetic apprehension of similarities and differences in reality” suggested the idea of a semio-mathetic apprehension of the relationship between mind and nature where meaning-creating subjects are seen not only as acquiring knowledge via semiotic categorization of cognized objects in their ever-changing and differentiating real world but also as forming their private mental worldviews. It confronted the conceptions of static epistemology as a theory of generalized knowledge about cosmic reality with the dynamic epistemology of knowledge production in the processes of approximating and adapting to changeable and variable reality that surrounds human organisms as cognizing subjects. As a consequence, the conviction about the existence of one objective world studied by scientists was postulated to be superseded with the statement about the occurrence of a multiplicity of subjective worlds which are experienced, constructed and imaginatively altered by average individuals in everyday life. Within such a framework, a rationalist epistemology of the critique of pure reason was counterpoised to an empiricist epistemology of the critique of pure experience.

The one-hour presidential lecture by Richard L. Lanigan, entitled “Bateson on difference: Culture ecology in nature” in the book of abstracts, was widely extended with a discussion on the linguistic functions according to Roman Jakobson. In addition to Norbert Wiener’s communication theory, where the “Observer Model” of communication is presented as incorporating human speech (language), an interpretive *code* for all messages, Lanigan’s argument was that apposition and apperception are unique human capacities, which allow culture to impose an ecology on nature. As Lanigan claimed, such a position opposes accounts of nature imposing an ecology on culture.

A summarizing contribution to the principal topic of the summer school was a special lecture confined to the context of the activity of botanical gardens, given by Paweł Kojas. The lecture entitled “Introducing the concept of adapton as a memetic ecosystem: Towards a unified idea of genetically steered brain-mind-adjustment of physical, biological or cultural systems to their environment” developed the concept of ‘adapton’ to highlight the adaptive nature of any system, either of the physical, the biological or the cultural kind. The author claimed that only such systems exist which are able to survive while adjusting to their environment. Employing the related concept of a ‘meme’ as a cultural gene, he defined a memetic ecosystem as uniting an organism with its environment. As he emphasized, like all adaptive systems, memetic adaptons should be regarded as systems that undergo adaptations and evolve to information-based systems. Even the formation of a “notion” is to be viewed as a process which undergoes both a memetic phylogenesis (phylomemesis) within the frame of language and culture, and ontogenesis (ontomemesis) within the frame of mind and body. The concept

of memetic adaptions refers to an adaptive system developing in time, and changing under the influence of inner and outer ecosystems, i.e., adjusting to its inner and outer memetic environments. Memetic adaptions are seen as interacting with other systems within the frame of metasystemic adaptions, which develop on the physical basis of the brain. Finally, the complex memetic ecosystem is defined with regard to its ability of adaptation to the constraints of an inner memetic meta-adaption and to the outer physical and memetic environs.

The division of the papers into thematic sections in the programme reveals that they were classified according to some motifs announced in the titles and abstracts, yet they were also partially intersecting or complementing one another. Among the main content-related motifs, there were intertwined questions about the criteria justifying the discerning of relational and existential properties of the notion of the ecological system and the environmentally conditioned system of mutual understanding. Here belonged, *inter alia*, issues connected with the classification of cultures and civilizations, as a science of systems, and issues related to the modelling of reality in accordance with the possible worlds existing in the individual experiences of humans and in the concluded worlds prevailing in the narratives about the reality of everyday life and artistic culture.

The presenters also discussed the peculiarity and role of teaching through signs, the formation of attitudes of learners through the acquisition of values, the structure of legal acts which regulate the behaviour of individuals and their rhetoric of communication in everyday life and qualification frames regulating the ways of acquiring knowledge and contents of teaching and their contributions to the state of knowledge among learners. One of the presentations emphasized the role of creativity in the activity of humans, breaking conventions and striving for innovation, while others pointed to the threat which the global spread of electronic technology and media civilization is bringing about, exerting a destructive influence on the natural and cultural environments in which people cope with problems of everyday life. Organizing this event that brought together internationally impactful semioticians was certainly remarkable for the Silesian Botanical Garden in Mikołów.