Submitted Summaries

Submitted Summaries

Witold Marciszewski, Undecidability and algorithmic intractability in social sciences

The paper is meant as a survey of issues in computational complexity from the standpoint of its relevance to social research. Moreover, the threads are hinted at that lead to computer science from mathematical logic and from philosophical questions about the limits and the power both of mathematics and the human mind.

Especially, the paper addresses Turing's idea of oracle, considering its impact on computational (i.e., relying on simulations) economy, sociology etc. Oracle is meant as a device capable of finding the values of uncomputable functions. Such an idealized entity is exemplified by the human mind's procedure of recognizing the truth of the Gödelian sentence, of identifying uncomputable numbers through Turing's diagonal procedure, etc. Since such procedures are strictly defined and are as reliable as any calculations, they are worth to be called computation as well. From the computation in the strict sense, that defined as purely algorithmic (mechanical) process, one distinguishes them with the term „hipercomputation". Now the following questions arise.

— Are there undecidable problems (ie. not decidable with appropriate algorithms) in social research as are (according to what is reported esp. By S. Wolfram) in natural sciences? The answer in the negative would impose limitations on computer simulations (as entirely relying on algorithms).

— If there are, then we have the next question: can such problems be addressed with hipercomputational procedures?

— How such hipercomputational procedures would be related to analog computation (coextensive, everlappiing, etc.)?

Another set of issues is stated in terms of tractability of decidable problems, that is, the efficiency of algorithms needed for solutions. As inefficient are regarded those which require more resources (time, memory, etc.) than is available in a foreseeable future. In this context, one discusses methods of such an efficient organizing computational processes to overcome the scarcity of resources; thus parallel, distributive, interactive, etc. computing are used as remedies.

The paper claims, hinting at F.Hayek's ideas, that in some social systems (e.g., stock exchange, and free market in general) such an efficient organization of their computational activities spontaneously evolves. And this is the main source of its advantages over the central economic planning (as defended by O. Lange). This noticing (in terms of complexity theory) of analogy between Hayek's point and the current discussion of efficiency of algorithms is what may count as an original contribution of the present paper.

Jerzy Bobryk, Mind-body problem as a bundle of interdisciplinary problems

The present paper focuses on the mind-body problem. According to the author, the mind-body problem is, as a matter of fact, a bundle of several problems; they are of a different nature and may be solved in the area of interdisciplinary cooperation. The paper concentrates on two aspects of the mind-body problems: the apparent causal interactions of the consciousness and the body, and the unique nature and genesis self-consciousness.

Anna Jedynak, Body and Mind in Direct Experience

Empirical knowledge can be divided into the following levels: direct experience, observational sentences, their generalizations and theories. Neither of those levels is the best in an absolute sense. There have been questions whether either of them is a scientific one, and the reasons of those doubts were different for each level. Different problems (including philosophical ones, for philosophy appeals to widely understood experience) could be considered on different levels. Which level is the most appropriate depends on the purpose of the consideration. The paper shows some reasons for rooting the mind-body problem on the level of direct experience, and aims to describe the manner in which we experience our body-and-mind as a unity. Thus the problem itself proves to be only superficial. However this conclusion can only be reached in a reflection following the direct experience.

Joanna Rączaszek-Leonardi

This article is an attempt to shortly outline the approaches to the mind-body problem that are currently discussed within psychology. In the introduction the attitude of a contemporary psychologist to the mind-body problem is assessed. It seems that due to the functional approach, that for the last 50 years prevailed (especially in cognitive psychology), the mind-body issue is not central to psychological thinking, and in the investigation of many problems researchers can abstract away from it.

Next, three approaches to the mind-body problem viewed from a perspective of the embodiment of a symbolic (and/or symbolically described) mind are briefly sketched. The already „traditional", symbolic information-processing approach in contrasted with 1) an approach that accepts both symbolic and dynamic description of mind, analyzes their relation, and advocates the indispensability of symbols; and 2) an approach that agrees that brain is a dynamical device but still cannot see the possibility of the same level description for the brain and its emergent properties. Neither approach, of course, offers a definitive solution to the mind-body problem. What they try to do is take away some of the „formal", „digital", „syntactic" properties of symbols, make them more „semantic" and „embodied", and show how they relate to the dynamics of the cognitive system.

In conclusion of the article a supposition is made that the growing acknowledgement of the role of semantics and embodiment in description of symbolic systems (which means abandoning functionalist assumption), may result in a greater involvement in the mind/body problem even in those areas of psychology, in which previously scientists could just turn their back on it.

Adriana Schetz, Is Mind-Body Problem Solvable?

The paper discusses the problem of naturalistic theories of mind-body relation. It displays knotting lines of arguments, which are presented by two influential philosophers: O. Flanagan and C. McGinn. The former author claims that the mind-body problem can easy be resolved by showing that mind and body are two somehow similar concepts. The latter is strongly convinced that because of human epistemic limitations we cant *in principle* to formulate solution of psychophysical problem.

I go on to argue that we can prepare good empirical hypotheses but I see no way to answer the philosophical question: how it is possible that subjective phenomenal states like pain, tickle etc. „are made" from physical staff?

Tadeusz Skalski, Action directed by neurones

Nowadays a completely paralysed human being can do many different things using his or hers neurones. This is a new situation. The author of the article tries to find a proper language to describe the situation. He also tries to show the consequences of the phenomenon for some philosophical theories of mind.

Bartłomiej Świątczak, Externalism and Localisation of the Mind

There are philosophers of mind who believe that externalism with regard to mental content leads inevitably to the conclusion, that the mind should be identified with something external to the cognitive system. These philosophers are convinced that contents of our thoughts are not located *in our heads* on the basis of Putnam's belief that the contents of linguistic expressions are not located in head.

The aim of this paper is to show that despite the above widespread convictions, externalism with regard to mental content allows to identify mental states with the

states of the cognitive system. If the question regarding the localization of the mind makes any sense, the mind has to be identified with the entity located within the cognitive system of an individual.

I will show that an externalist is not in a position to identify the mental with contents of representational states of the cognitive system. She is unable to identify the mind and mental states with physical bearers too. What is the common mistake of these two options is an unacceptable idealization according to which it is possible to separate content from a bearer. The only possible option that externalist could embrace is the one that says that a mental state should be identified with physical bearers bearing content. Such bearers are the physical objects that thanks to the system in which they exist can stand for other objects. Form the externalistic point of view this power of standing for something is determined, at least partially, by external factors.

Urszula Żegleń, Multi-Dimensionalities of the Mind

In this paper I defend the multi-dimensional conception of the mind according to which an account of one-dimension, for example biological or computational or cultural, is insufficient for an adequate theory of the mind. The systematic account of this conception was presented in my book Philosophy of mind. The debate with naturalistic conceptions of mind (in Polish, Marszałek 2003). Here I only focus on some problems which have been raised by Robert Poczobut in his review of my book (presented in this volume).

They are the following problems: the problem of unification of research in the paradigm of cognitive science (i.e., unification via information); the problem of reduction and emergence discussed on Searle's approach to the mind; the problem of causality and determinations of the mind (Does the mind have only causal, i.e. physical determination or not?, Does the determination of the mind have any influence on the causal complementation of the physical universe?, Is possible a system without any causal determination?); the problem of consciousness (Is consciousness possible in artificial intelligence? What is the conclusion from the known-Searle's principle of connection saying about the connection between the intentional and conscious states?); and the problem of compatibility of descriptions given in the philosophy of mind at the psychological level, and in neuroscience at the neuronal level (I'd presented this compatibility on the analysis of the experience of pain).

In the conclusion, entitled „Conclusion without dialectics," I reply to the objection of my reviewer that I admit the dialectics of naturalism with non-naturalism. I agree for such „dialectics" as a starting point from where I speak for certain continuity in research of the mind conducted by science and philosophy, but I also admit such dimensions of the mind which can be studied autonomically (in non-naturalistic philosophical approach).